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THE ASSOCIATED STUDY OF THE CLINICAL AND THE MACROSCOPIC AND MICROSCOPIC APPEARANCES OF CARCINOMATOUS TUMOURS OF THE BREAST.

By **H. C. Rutherford-Darling, M.D., M.S. (Lond.), F.R.C.S. (Eng.), F.R.F.P. (Glas.),**

Assistant Surgeon, Royal South Sydney and Mater Misericordiæ Hospitals; Tutor in Anatomy and Demonstrator of Operative Surgery, Sydney University.

I have chosen this subject for three reasons: firstly because the condition is relatively common, secondly because the diagnosis is comparatively easy, and thirdly because the treatment, once the diagnosis is established, has been definitely determined.

The great problem in the treatment of carcinoma of the breast is its early recognition, and in this paper I propose to discuss (*i.*) the clinical picture which will allow a diagnosis of carcinoma, and justify the complete operation without an exploratory incision, and (*ii.*) the gross appearances of malignant disease of the breast, so that it can be recognized by exploratory incision when a positive clinical diagnosis cannot be made.

Most carcinomatous growths of the breast are hard and fibrous, and hence the term scirrhus has been largely used throughout the profession, but it must be clearly understood that many carcinomatous growths of the mammæ are not in the least hard and fibrous, and do not contract, and for them the term scirrhus is a misnomer.

Carcinoma, apart from rare exceptions, originates in the acini or ducts. Spheroidal-celled carcinoma constitues the ordinary form of carcinoma of the breast, and originates in the epithelium of the acini. It may be either hard or soft; it begins life by infiltration and involves the lymphatic system early.

Columnar-celled carcinoma is occasionally met with, and takes its origin from the epithelium of the ducts. It is the malignant evolution of a papilloma, but at the commencement of its career it does not infiltrate in the same manner as a spheroidal-celled cancer.

Over thirty years ago Thomas Bryant classified carcinoma of the breast into six clinical varieties, and modern research has shown this classification to be founded on a sound pathological basis. It, therefore, behoves us to study the clinical pictures together with the macroscopic and microscopic anatomy of each of these types:—

(1) The very slow growing, and subsequently atrophying scirrhus carcinoma (atrophic scirrhus).
(2) The more common variety, or hard, fibrous infiltrating form of carcinoma (hard, spheroidal-celled carcinoma).
(3) The soft, more cellular and encephaloid variety (soft spheroidal-celled carcinoma).
(4) The acute brawny cancer.
(5) The colloid cancer.
(6) The cystic carcinoma (columnar-celled carcinoma).

The macroscopic features of carcinomatous growths are best studied in the laboratory by sections made cleanly through the breast in such a way as to pass through both the nipple and the tumour. The gross appearance of the incised breast usually enables the diagnosis of cancer to be made without difficulty. The normal mammary tissue is white, soft and yielding to the fingers, whilst the cancerous tissue is usually firm and hard.

The microscopical appearance presented by the growth may be very different, not only in different tumours, but also in different parts of the same tumour. They depend mainly upon the relative proportion of the epithelial and connective tissue elements and upon the size and shape of the alveolar spaces, or, in other words, upon the size and form of the clusters of malignant cells which they contain.

Usually the acinous arrangement is lost, but not uncommonly a distinct acinous type is retained, the cells being arranged to enclose a central lumen (adeno-carcinoma).

These atypical epithelial cells occupy, invade and multiply in a more or less vascular connective tissue framework, consisting of the original stroma of the breast, which is somewhat modified and generally added to by secondary changes of an inflammatory and often partly degenerative character, set up by the irritation of the proliferating cancer cells. The so-called alveolar spaces of the stroma are to be regarded, therefore, as neither more nor less than the lymph spaces and interstices of the tissue.

I.—Atrophic Scirrhus.

Synonyms: withering scirrhus, shrinking cancer, connective tissue cancer.

Clinical Picture.—The most marked characteristic of atrophic scirrhus is its invariable tendency to produce contraction of the tissues, in other words the struggle between the neoplasm and the host is prolonged and doubtful. In a well-marked case a puckered scar, to which the skin is attached, slowly appears in the breast. The whole breast shrinks, becoming smaller than its fellow; the nipple retracts so as to be barely perceptible, but no definite tumour makes its appearance. Despite the slow evolution of the disease, it is always progressive, though patients may live for ten, twelve or fifteen years before they die.

Should the growth be irritated or interfered with, it may become active, and what has been a local disease will become transformed into a general one by lymphatic and vascular metastases.

Macroscopical Anatomy.—Here the formation of fibrous tissue has been very much more extensive from the beginning than the proliferation of epithelium. The growth is of very small size, much denser and more fibrous than the hard spheroidal-celled type, and cuts with great difficulty, usually giving a creaking sensation on section. The cut section exhibits a very dense fibrous looking cicatrix, with numerous silvery, white strands (the so-called "claws" of the cancer) radiating out into the tissues around.

Microscopical Anatomy.—The growth closely resembles fibrous tissue, but here and there a few scattered collections of epithelial cells and débris are found, which mark the true nature of the affection. On the other hand certain sections may show a total absence of epithelium.

II.—Hard Spheroidal-Celled Cancer.

Synonyms: scirrhus cancer, tubular cancer, hard cancer, nodular scirrhus.

Clinical Picture.—This is the most common tumour of the female breast, and presents itself as a small, well defined, very hard nodule, which can be readily palpated, but no distinct line of demarcation between healthy and diseased tissue permits it to be distinctly isolated. It rarely attains a size larger than that of a hen's egg, and in its early stages has always an irregular bossed outline. It exerts traction upon the surrounding tissues, notably upon the glandular substance, the skin in front and the pectoral fascia behind. If the growth is situated near the centre of the gland, retraction of the nipple may take place.

Three years is about the average duration of life of a person afflicted with this type of carcinoma mammæ.

Macroscopical Anatomy.—The naked-eye appearance of the ordinary hard spheroidal-celled carcinoma is very characteristic and important. Even a small nodule gives a marked resistance on section, and the cut surface becomes slightly concave or cupped, and if scraped yields a thick creamy juice. The tumour substance is greyish or bluish grey in colour (like ground glass), and marked by opaque yellowish-white lines and dots, which give it the appearance of a section of an unripe pear. The surrounding tissues, especially the skin and nipple, are drawn towards the tumour by white, fibrous radiating bands.

Two conditions closely resembling a hard spheroidal-celled cancer are an old scar tissue and an old inflamed adherent fibro-adenoma. In the so-called "diffuse scirrhus" (infiltrating carcinoma) the breast tissue is infiltrated much more widely, the tumour is softer than the above and the shrinking is less marked.

Microscopical Anatomy.—The central portion is mainly fibrous, the epithelial groups being small, with their cells compressed and more or less degenerated, the whole appearance resembling that seen in atrophic scirrhus. At the growing edge, on the other hand, the cell groups are large and abundant, the stroma being scanty, so that the appearance resembles that seen in soft spheroidal-celled carcinoma.

III.—Soft Spheroidal-Celled Cancer.

Synonyms: encephaloid cancer, medullary or soft cancer, acinous cancer.

Clinical Picture.—All the contracting, adherent characters of a scirrhus are absent, and the tumour appears as a rapidly growing malignant neoplasm. In other words the proliferative activity of the cancerous epithelium outstrips the defensive fibrotic processes, and a large lobulated, soft, rapidly growing tumour forms in the substance of the breast, to which the skin becomes extensively adherent, and it quickly assumes a *peau d'orange* appearance. Later the skin over it becomes dusky, livid and marked by enlarged veins, and finally it ulcerates and a fungating mass of cancerous tissue protrudes.

Soft spheroidal-celled carcinoma occurs, especially in young women, and is of bad prognosis, the duration of life being a matter of months.

Macroscopical Anatomy.—Soft spheroidal-celled carcinoma usually appears as a large, soft, well localized tumour of dull yellowish-grey colour, which shows little tendency to shrink; and occasionally its centre degenerates and breaks down into a pulpy mass, mixed with blood. On section the growth offers but little resistance to the passage of a knife, the cut surface is usally flat, milky-white, and yields abundant juice on being scraped. Its margins, whilst not encapsuled, can generally be distinguished from the surrounding breast tissue. Such tumours cannot with certainty be distinguished with the naked eye from the more acute forms of sarcoma.

Microscopical Anatomy.—The striking characteristic of this type of growth is the great preponderance of the cancerous epithelium over the connective tissue stroma, for the tumuor is composed of large, irregular masses of cancerous cells, which are surrounded by a delicate trabeculæ of connective tissue. The atypical epithelial cells, which are the essential elements of the tumour, insinuate themselves into the lymph spaces of the adjacent tissues, and dilate them to form the alveolar spaces of the cancer. These cells, especially their nuclei, are much larger and show signs of greater reproductive activity than the cells of the gland. The intra-acinous connective tissue proliferates and become infiltrated with leucocytes.

IV.—Acute Cancer.

Synonyms: mastitis carcinoma, carcinoma mastitoides, brawny cancer, carcinomatous mastitis, inflamed cancer.

Clinical Picture.—This growth is characterized by a very rapid, fulminating variety of breast cancer, which, by setting up violent irritation, produces a round-celled infiltration, closely resembling a primary mastitis. It arises suddenly without the presence of any previous noted mass or area of induration, and appears as a rapid infiltration of the breast, and of the skin over it; it usually appears during pregnancy or lactation. It manifests itself as a general, painful, very rapid enlargement of the breast, which in contradistinction to the other forms of mammary cancer, is diffuse, and consequently no distinct mass can be felt in the breast on palpation. All the signs of inflammation are present, and the body temperature is raised. The gland is red, hot and œdematous, and may present a sense of fluctuation. The skin often presents the typical *peau d'orange* appearance, the subcutaneous veins are unduly prominent and the superficial lymphatics may appear as swollen, white cords radiating from the nipple.

There is rapid general dissemination of the disease with death from acute toxæmia. The duration of the cancer seldom exceeding a few weeks, and is usually from six to twelve. This form of cancer is seldom, if ever, improved by operative treatment, recurrence taking place with great virulence and rapidity. In explanation of the origin of acute cancer it has been assumed that either the whole breast simultaneously undergoes carcinomatous degeneration *en masse* (multicentric origin), or the cancer originates at one spot (unicentric origin) and rapidly spreads throughout the whole gland by way of the lymphatics. The

latter is probably the usual, if not the invariable, course of events. The surgeon will be saved from confounding these tumours with abscesses by observing that there is a suspicious amount of solid material about the base of the supposed abscess, and that the skin, though red and inflamed, is also thickened and infiltrated like pigskin.

Macroscopical Anatomy.—The tumour substance almost entirely replaces the breast tissue. It consists of lobules of soft granular growth, which are of purplish-red colour, frequently exhibiting small necrotic areas and patches of hæmorrhage.

Microscopic Anatomy.—The chief feature is the secondary inflammatory reaction set up around the cancerous cell masses, giving rise to a general diffuse, round-celled infiltration and connective tissue hyperplasia, often so profound as to terminate in necrosis. The growth itself has in the main the characteristics of a soft spheroidal-celled carcinoma; the cell masses are large and the intervening stroma scanty.

V.—Colloid Cancer.

Synonyms: gelatinous cancer, mucoid cancer.

Clinical Picture.—Colloid degeneration of a cancer, unless the skin is invaded, can only be recognized when the breast is cut across, and hence is of little clinical importance. The tumour usually begins about middle life as a circumscribed, firm, nodular tumour of slow growth, a history of five to ten years' duration being frequently given. Colloid degeneration, although causing an increase in the size of the tumour and an absence of the signs depending upon contraction, usually retards the dissemination of the growth, and diminishes its tendency to infiltrate until it becomes one of the most benign of breast cancers.

Macroscopical Anatomy.—It is uncommon to find a tumour in which colloid degeneration has invaded the whole of the growth. As a rule a considerable part remains unchanged, and retains the ordinary appearance of a hard spheroidal-celled cancer. The affected portion shows areas presenting a fine reticulum, the meshes of which are filled with a clear colourless or yellowish-glutinous material.

Microscopical Anatomy.—The process is first manifested by the appearance of a globule of colloid material in a cancerous cell, and finally the cell becomes completely destroyed, its cell wall gives way and the globule becomes free. Later the alveoli becomes distended by the colloid matter until they become visible to the naked eye, appearing as a delicate network filled with jelly-like substance.

VI.—Columnar-Celled Carcinoma.

Synonyms: duct carcinoma, villous carcinoma, malignant papilloma, papillary cystocarinoma, tubular carcinoma (Mellish).

Clinical Picture.—This form of cancer of the breast, which usually only appears in patients over middle age, is rare. The tumour is most commonly situated beneath or near the nipple, which is usually not retracted. It is much softer than the common form of spheroidal carcinoma, and evidence of shrinking is usually absent. A blood-stained discharge from the nipple may be present in both columnar-celled cancer and duct papilloma, but if this symptom exists in a woman of 42 years or upwards, together with a firm (infiltrating[1]) tumour near the base of the nipple, which is not retracted, the diagnosis can be made with tolerable certainty (Bloodgood).

Columnar-celled carcinoma runs a much less malignant course than spheroidal-celled cancer, and invasion of the lymphatic glands is late.

Macroscopical Anatomy.—The descriptions of various authors, regarding columnar-celled carcinoma, are even now very conflicting, and it appears that further researches into its structure must be made before definite statements are justifiable.

The substance of the tumour is usually firm, but may be exceedingly soft and friable; its colour varies from pink to dark brown or red, according to the amount of hæmorrhage into the growth, and in some cases the altered blood may closely resemble a melanotic deposit. The cut surface presents a more or less definitely cystic structure, the spaces being occupied by altered blood, caseous débris of cancerous epithelium or vascular papillomatous growth.

The essential difference between columnar-celled carcinoma and a simple duct papilloma is that in the latter the growth is entirely confined to the interior of a dilated duct, whilst in the carcinoma the growth extends from the duct into the tissues around in the form of spaces lined with columnar epithelium. Columnar-celled carcinoma of the breast does not always assume the above form, but may be met with as a growth which cannot with certainty be distinguished by naked-eye examination from the spheroidal-celled carcinoma.

Microscopical Appearance.—The tumour consists of a meshwork of irregular spaces lying in a delicate cellular stroma. Into many of the spaces irregular papillary processes project; the epithelium lining the spaces is in many parts a single layer of cubical or columnar cells; in other parts the lining epithelium has proliferated into considerable masses of spheroidal cells, which may almost entirely occupy the lumen of the spaces.

Cystic cavities, filled with altered blood of all colours, are exceeding common, and extravasation of blood may take place amongst the cellular elements.

Since Thomas Bryant's classification was first instituted three more types of cancer of the breast have been more or less isolated from the medley of breast diseases, namely: adeno-carcinoma (Halsted), *carcinoma simplex*, and carcinomatous cysts (Bloodgood), and to complete our description we will devote a few lines to the description of each of these three types:—

(To be continued.)

THE ORGANIZATION AND SURGERY OF MILITARY ORTHOPÆDIC HOSPITALS, WITH SPECIAL REFERENCE TO NERVE SURGERY.[1]

By **Lennox G. Teece, M.B., Ch.M. (Sydney),**
Sydney.

(Continued from page 200.)

The types of cases encountered at the orthopædic centres fall naturally into three groups: (1) The recently wounded; (2) those whose wounds are

[1] I think this limitation necessary.

[1] Read at a Meeting of the New South Wales Branch of the British Medical Association on July 26, 1918.

healed, or who only have remaining a persistent sinus or some quiescent infection, and who require treatment for the disability which has resulted from the wound; (3) those with deformities and disabilities not the result of wounds.

The first group comprised gun-shot fractures of the femur and wounds of joints, mainly the knee joint. Strictly speaking, every fracture is an orthopædic case, as well as every wound of a joint, but so numerous are such cases that it would be impossible to send them all to orthopædic centres. However, the results of gun-shot fractures of the femur were so disappointing throughout the hospitals generally that in 1917 the Army Council issued an instruction ordering that all these patients in England should be treated in the orthopædic hospitals. Men with wounds of the knee joint were sent to these centres in preference to those with wounds of other joints, largely because a great amount of research was being done in France at the casualty clearing stations and base hospitals on the most appropriate treatment of this condition. By sending them to hospitals of this type on their transfer to England, it was hoped to make it easier to collect records and draw conclusions as to the efficacy of the rival modes of treatment, inasmuch as their final treatment would be in the hands of comparatively few men, and this at a stage when the ultimate functional result was beginning to declare itself. As regards the second group, there were those whose wounds were mainly healed. These comprised the bulk of the patients, and consisted of ununited and malunited fractures, flail joints, and joints ankylosed or with limitation of movement, divided tendons, peripheral nerve injuries, partial or complete, when associated with stiffness of joints, contractures or any fixed deformity, cases requiring tendon transplantations, and deformities postural or functional, associated with the results of wounds.

The deformities not the result of wounds were flat feet and claw feet, *hallux rigidus et valgus*, metatarsalgia, scoliosis, *genu valgum* and torticollis, whilst the disabilities included sprains of joints, both chronic and acute, and displaced semilunar cartilages. We did no fitting of artificial limbs. That was all done at special auxiliary hospitals, of which Rockhampton is a type. No actual operative surgery was done at Rockhampton. When a patient arrived there, and it was decided that he required further treatment before his stump would be in a condition to be fitted, he was transferred to an orthopædic centre, where the appropriate treatment was carried out. These centres therefore had a great deal to do in the way of re-amputations and excision of bulbous nerves.

It is impossible to describe in detail in the short time at my disposal the nature of all the work done, but in one field, that of nerve surgery, the number of cases dealt with was so large, the conclusions drawn from our separate experiences so remarkable for unanimity, that it is worth while to relate our routine procedure in dealing with these cases and the general character of the results obtained.

In our experience the nerves most frequently injured were, in the upper limb, the ulnar, musculospiral and median in that order. Brachial plexus lesions were also common; in the lower limb sciatic nerve lesions were by far the commonest. When portion only of it was injured, it was most usually the external popliteal. The posterior tibial was also frequently affected, but injuries of other nerves were extremely rare.

Every man suspected of any nerve lesion, functional or organic, underwent a thorough neurological test at the hands of a competent neurologist, and accurate charts of the areas of anæsthesia, both epicritic, protopathic, and deep, were made and filed away for future reference. Electrical tests of the galvanic and faradic excitability were next performed. The faradic examination was usually made by the bipolar method, and with practice a rapid, and at the same time accurate, examination could be carried out. In making the galvanic examination it was found that the phenomenon of the inversion of the polar formula KCC > ACC was of little diagnostic value, but that extremely reliable information was gained by noting the nature of the contraction, the delayed sluggish vermiform contraction in place of the normal, brisk twitch being important, if decisive, in the determination of the presence of the reaction of degeneration. The rise in the threshold of excitation from an average of three milliampères to 15 or 20 was also constant. Testing by means of condenser discharges was found to be of scant value.

The presence of oedema, dryness of the skin, cold, and prolonged stretching of muscles may confuse or even nullify electrical tests, and where these hindrances existed the tests were repeated after an interval during which the relaxation of the stretched muscles was sought to be effected by massage, etc. Whirlpool baths as an immediate preliminary to electrical testing are of great value in diminishing the skin resistance. Before anything in the nature of nerve exploration is undertaken, all fixed deformity must be overcome. It is useless to take measures to restore to a muscle its innervation, and thus enable it to contract, when its opponents are so shortened by long continued postural deformity and over action without opposition that they form an insuperable bar to the performance of the function of the recovered muscle. For example, it will not avail to suture the musculo-spiral nerve and restore power to the extensors of the wrist when the wrist is immovably fixed in flexion by shortening of the flexor group of muscles. McMurray, of Liverpool, goes so far as to tenotomize the *tendo Achilles* in every case when he sutures the external popliteal nerve, fearing that, when the patient begins to walk, no mechanical contrivance will be efficient to prevent it shortening 'ere the dorsiflexors of the foot have regained their power. This correction of deformity before operation, and the prevention of its recurrence after operation, whilst awaiting the restoration of function, is a comparatively simple matter, but one that is widely neglected, and it is the most fruitful cause of bad

results in nerve surgery. As regards the actual operation, the incision should be of ample length to expose the nerve both above and below the site of the lesion. An attempt to identify it in the middle of the lesion in a mass of scar tissue involves waste of time, unnecessary trauma, and is, moreover, frequently unsuccessful. Far better is it to pick it up where it lies in its normal relations, and from each end to trace it into the scar tissue. The nerve must be treated wth the utmost gentleness, and must not be pinched, squeezed, dragged upon, or actively handled with the forceps. I have seen a heavy handed surgeon, when operating on the ulnar nerve in the axilla, superadd a paralysis of the median through the trauma inflicted by his handling.

When the nerve has been completely exposed, there may be found a complete anatomical solution of continuity, or it may be divided through only portion of its thickness or it may be compressed by scar tissue, but otherwise normal in appearance. Again, there may be marked thickening of the nerve sheath with apparently no division, or hard fibrous thickening may be palpated in the substance of the nerve.

In all cases where there is not a complete anatomical division of the nerve, the response to faradism of the exposed nerve should be tested on the operating table. For this purpose a Smart-Bristow faradic coil is used with a metronome interrupter. The indifferent electrode is placed anywhere away from the field of operation, and for it a large flat electrode should be used. The other electrode and the connecting cord attached to it should be completely sterilizable by boiling, and this electrode is merely a piece of wire. The field of operation is carefully swabbed dry, the nerve gently raised on a glass rod, and stimulated by the faradic current, regular interruptions being secured by the use of the metronome. The Smart-Bristow coil is used with the core right out, and only one layer of the secondary coil is used. This produces a current so weak that it can just be perceived by the human tongue. So weak is it that the electrode can be made to stimulate individual groups of fibres in a nerve, without the stimulus spreading to the rest of the nerve. For example, in the median nerve exposed in the upper arm we can stimulate the fibres supplying the small muscles of the thenar eminence, without in any way stimulating the flexor group generally. By this procedure then it becomes perfectly feasible for the surgeon to identify the respective functions of the individual groups of fibres of a motor nerve at any part, and to form an accurate estimate of the extent of the lesion present. It is not uncommon to find before operation no faradic response in the muscles supplied by a motor nerve, and yet on stimulating the exposed nerve, as described above, to find the response to faradism present in all its muscular supply.

It is essential, therefore, that on every occasion when a motor nerve is explored, the surgeon should have the means of testing it electrically at hand. Should this precaution not be observed, he may be at a loss to determine the proper procedure, should he find the nerve not completely divided.

For suture fine catgut alone must be used. A non-absorbable material, such as silk or thread, by its action as a foreign body, excites the proliferation of fibrous tissue, which is the very thing it is most desired to avoid. One tension suture should first be inserted right through the substance of the nerve and tied to hold the ends of the nerve approximated. It can be removed at the conclusion of the suturing. Then from three to eight sutures are to be inserted through the nerve sheath, the number varying according to the size of the nerve. The intention is that these sutures should include the sheath alone, but it is probable that they invariably pierce a few fibres. It is most important that accurate apposition of the sheath be secured around the whole circumference of the nerve. Before commencing to suture both the proximal and the distal ends of the nerve must be repeatedly sectioned transversely till fibres normal to the naked eye appear. A sharp tenotome, not scissors, is to be used to shave off the sections; it involves the removal of the greater part of the bulb on the proximal end. The suturing must be done without excessive tension, which is fatal to the prospects of recovery. Relief of tension may often be obtained by flexing an adjacent joint. Such joints must be maintained flexed for a minimum of three weeks after the operation, and extension restored gradually over a long period. In the case of the ulnar nerve 5 cm. of length may be gained by transplanting it to the front of the elbow, tunnelling through the origin of the flexor group of muscles for this purpose.

All unnecessary handling of the nerve should be avoided. The only parts it is permissible to handle with the dissecting forceps are the extreme proximal and distal ends, which will afterwards be shaved off before the suturing commences. Therefore, do not trim the ends till the last possible moment, so that they may be used to handle the nerve by. As each sheath suture is inserted and tied, the ends should be left long and used to hold the nerve by. It can be rolled over so as to facilitate the insertion of the sutures on the side remote from the operator. When the electrical examination shows only partial division, the scar tissue from the site of the wound in the nerve should be removed, and the normal fibres left untouched. After apparently normal nerve tissue has been exposed above and below, these portions are sutured to one another as described above. This will involve pleating of the undamaged portion of the nerve, but in no wise interferes with its function.

Scar tissue constricting the nerve or adherent to the sheath and fibrous nodules in the substance of the nerve should be removed. When the only apparent lesion is thickening of the whole nerve on its sheath alone, and yet there is a complete block to all electrical impulses, longitudinal incisions should be made through the thickened sheath to relieve the compression of the nerve fibres caused by the proliferation of fibrous tissue. Accurate hæmostasis

should always be secured, and for this reason a tourniquet should never be used on account of the increased tendency to bleeding after its removal. Should the wound fill up with blood clot, the chances of the nerve becoming densely involved in scar tissue again are great. As regards wrapping of the nerves, a wide variety of substances have been used. These include Cargile membrane, fat, *fascia lata*, and segments of the large, superficial veins. I have had the opportunity of seeing cases in which all these methods, with the exception of superficial veins, had been used, and an exploration carried out at a later date; in each case the wrapping, instead of preventing the involvement of the nerve in scar tissue, had obviously accentuated it. In the case in which Cargile membrane had been used, the production of scar tissue had been particularly great.

There is one way by which the re-involvement of the nerve in scar tissue can be avoided. It consists in the thorough cleaning of the bed in which it is to lie. From this bed all scar tissue is to be cut away freely till healthy tissue is reached, or, failing this, the nerve must be displaced to an abnormal situation, where it will lie free from the scar tissue. These procedures must be combined with perfect hæmostasis to ensure success. I had the opportunity of exploring after a lapse of three months one such case of an ulnar nerve in the arm, which had been treated in this manner by Major Elmslie, R.A.M.C. I found only the faintest filmy adhesion, such as in no way pressed upon the nerve or interfered with its conductivity. This method has now been adopted as the routine procedure by those who have had the most extensive experience of nerve surgery.

In those cases where the gap between the divided ends of the nerve is so extensive that suture is impossible, or possible only with excessive tension, other measures must be adopted. The interposition of strands of catgut silk or fragments of tendon or *fascia lata* has nothing to recommend it; for, as Tinel says, "Nothing but nerve tissue can serve as a conductor for regenerating axis cylinders." We thus have to choose between nerve anastomosis and nerve grafting.

Nerve anastomasis holds out less chance of success than direct suture. To perform it by lateral implantation, that is by planting the distal end of the divided nerve into a slit made longitudinally into the receiving nerve, is to court failure, for the following reason: It has been amply proved that regeneration in nerve tissue will only follow where the divided proximal ends of the axis cylinders are brought into accurate apposition with the empty sheaths of Schwann, wherein lay prior to degeneration the distal continuations of the axis cylinders. Therefore, if anastomosis is to succeed, the receiving nerve must divided transversely through part, at least, of its thickness, and the divided proximal portion sutured accurately to the peripheral segment of the paralysed nerve. Even so, clinical experience teaches us that the results obtained by this method are far from encouraging. We are thus compelled to fall back on nerve grafting, and by it successes may be obtained, though with less constancy than by the method of direct suture. Grafts may be heterogeneous, homogenous or autogenous. Heterogeneous grafts are in general disfavour, though Major Robson claims a success in a case in which he used the spinal cord of a rabbit. As, however, he also claimed that sensation commenced to return almost imediately after the operation, it can only be said that his experience controverts the expressed opinion of every neurologist on the subject of nerve generation. Recovery may, however, be expected with the use of autogenous or homogenous grafts. Satisfactory homogenous grafts are rarely obtainable. They are only at hand in an orthopædic hospital, where they may be obtained from cases of excision of bulbous nerves and reamputations. My own custom was to arrange to operate at the same time as a bulbous nerve was being excised on a limb amputated, so that the graft was transferred either direct or after a few minutes' immersion in a bowl of saline solution from the donor to the recipient. In these cases it is advisable that a Wassermann test should be carried out on the donor prior to operation. In performing an autogenous graft the difficulty has been in securing a graft of a calibre approximating that of the divided nerve. The radial from the forearm or the musculo-cutaneous from the leg is usually utilized.

The after treatment of these peripheral nerve injuries is postural and nutritional. The postural treatment consists in the maintenance of complete relaxation of the paralysed muscles.

In musculo-spiral paralysis the metal "cock-up" splints must be continuously used, and even when the splint is removed for washing the hand must be held in the position of dorsi-flexion. In ulnar paralysis small metal "gutter" splints are worn on the fingers to counteract the tendency whieh always exists to postural-flexion at the first inter-phalangeal joint, a flexion which unduly stretches the interossei muscles. The *serratus magnus* is rested by the use of a "collar and cuff," as shown in the slide which approximates the hand of the affected side to the opposite shoulder. For external popliteal paralysis we use a boot with a toe-raising spring to relax the dorsi-flexors, and this is a satisfactory apparatus for permanent use where the external popliteal nerve is irreparably damaged. In brachial plexus lesions the claims to relaxation of the different groups of paralysed but normally antagonistic muscles are best met by the adoption of an arm abduction splint, as shown with "cock-up" attachment, which holds the arm abducted, the elbow semi-flexed, the forearm supinated, and the wrist dorsi-flexed. In median paralysis the most disabling paralyses are those of the *flexor longus pollicis* and the *opponens pollicis*. Therefore, whilst the surgeon is awaiting their recovery he should keep them well relaxed. This is best done by using adhesive strapping to hold the terminal joint of the thumb well flexed and the whole digit opposed to the little finger. Similarly in musculo-spinal paralysis the surgeon should beware of neglecting the *abductor ossis metacarpi* and *extensor primi internodii pollicis*. The ordinary "cock-up" splint fails to keep the

thumb satisfactorily abducted, and this is best effected by moulding a small plaster of Paris splint into the cleft between the thumb and index finger.

Nutritional treatment consists in keeping the part warmly covered, as these patients are much affected by the cold, and in applying massage and electrical treatment. Electrical treatment must be definite and systematic. The electricity has no value in itself. Its sole use lies in its power to produce contraction of the affected muscles. Therefore, electric baths or haphazard stroking of an electrode up and down the paralysed limb is not to be recommended. Equally, therefore, the faradic current is useless until such time as the muscle has regained its power of responding thereto. The treatment should be commenced with the galvanic current, and a metronome used to secure regular interruptions, and to stimulate the motor points of the affected muscles. Sufficient current should be used to evoke contractions. Treatment should be carried out daily, and the return of faradic response should be carefully watched for, and when that occurs the faradic current utilized in addition. The electrical treatment is facilitated by the use of the whirlpool bath or of massage immediately prior to its application.

The results of nerve surgery vary enormously in different hands, and are a measure of the quality of the operator's technique and the care bestowed on the after treatment. Generally speaking, the results are promising, though recovery is found to be considerably slower than used to be the case in nerve sutures in civil life. The delay is accounted for by the greater trauma and the almost universal complication of sepsis in the original wound, causing excessive scar formation and preventing early operation. The individual nerves also vary in the time they take to regenerate. The musculo-spiral is the quickest, and also has the most favourable prognosis. Recovery may confidently be expected to commence about eight or nine months from the date of suture. In a high division of the sciatic, on the other hand, probably two years will elapse before signs of motor recovery become evident, though recovery is more certain in the case of this nerve than of either the median or the ulnar. The rate of growth of the axis cylinders is only from one to two millimetres per day, so that recovery is necessarily slow. An important and early sign of recovery is that spoken of as *fourmillement*. Its elicitation is as follows:—Percuss firmly with the finger along the trunk of the affected nerve, and when the percussion is over the actively advancing axis cylinders, that is over the point to which regeneration has advanced, the patient complains of a tingling pain shooting down the cutaneous distribution of the nerve. Thus, from week to week we can follow and record the advance of repair in each individual case. Tinel estimates that only 12.9% of nerve sutures and nerve grafts are failures, and with these figures before us we can confidently predict that, with improvement in technique and assiduous care in after-treatment, the vast majority of the victims of nerve lesions will be amply repaid by submitting to surgical intervention.

Reports of Cases.

SEVERE POST-ANÆSTHETIC ACIDOSIS, WITH RECOVERY.

By **Gilbert Brown, M.B., Ch.B.,**
Snowtown, South Australia.

It has long been known that acetone is present in the urine of many patients who have been anæsthetized.

As early as 1894 Becker stated[1] that acetone follows on anæsthesia in at least two-thirds of the cases, irrespective of the nature of the anæsthetic or the duration of the anæsthesia, "and that if it be already present, it is increased thereby."

This has been confirmed by numerous observers.[2]

The quantity of acetone present in most cases is small, and the effects negligible. In others, however, with more acetone, the symptoms may be exceedingly severe, and culminate in death.[3]

The following case is one in which the symptoms were very severe, but recovery took place.

B.L., *æt.* 32, a trained nurse, was admitted on account of dysmenorrhœa.

Past History.—She had had acute rheumatism at 8 years of age and diphtheria at 9½ years (no antitoxin). She is said to have had pleurisy and tonsillitis several times. She had been treated for anæmia on three or four occasions.

History of Present Condition.—The menses had appeared at the age of 13 years; they had been regular, and lasted for five days, recurring each 28 days, till the last two years. Since then the periods had gradually changed from five to seven days, with a cycle of 21 days, and there was excessive loss. She always had pain in the back and abdomen, accompanied by great flatulence, especially on the last day. Recently this was so severe that one or two days in bed had been required.

Present Condition.—The patient is well nourished, but rather anæmic. Alimentary system: the upper teeth are artificial and the lower molars are deficient; there is some pyorrhœa of the incisors. The abdomen is normal, except during menstruation, when there is tenderness in the right iliac fossa. She is always constipated, and seeks relief from cascara, taken every night. The circulatory system is normal, except that the heart sounds are rather weak. The respiratory system is normal, except for a few râles from a recent bad cold.

It was decided to give an anæsthetic for the purpose of a thorough pelvic examination and a curetting, if found necessary. Castor oil was given on the evening before the intervention, and an enema on the morning. Bovril was given at 6 a.m., but nothing subsequently. No narcotic was given. The routine examination of the urine and administration of glucose were omitted through a misunderstanding.

The anæsthesia was arranged for 10.30 a.m. on July 21, 1916, but, owing to an urgent operation, had to be delayed until 2 p.m. The anæsthetic was given by Dr. Carden, of Bute. Induction was commenced with ether by the open method; this caused much coughing, and a change had to be made to chloroform. This anæsthetic was taken very badly. Breathing stopped twice, and was never satisfactory. The colour was greyish-blue throughout. The amount of anæsthetic used was not measured. The total time from the commencement of induction was 25 minutes.

Pelvic Examination.—The hymen was intact, and the cervix was bulky and eroded. The uterus was not enlarged, was slightly retroverted, but very mobile. The appendages were normal.

The cervix was dilated and the endometrium curetted. The uterus was swabbed out with tincture of iodine and packed.

The patient was then put back to bed. She vomited, and the breathing then improved. A rectal saline injection of 208 mil. was given, and a hypodermic of morphine, 0.01 gm., hyoscine, 0.0006 gm., and atropine, 0.0006 gm. Later in the afternoon a large drink of warm solution of soda bicarbonate was given, to wash out the stomach. At 9 p.m. cascara was given, and morphine, 0.008 gm., with hyoscine, 0.0006 gm. The patient passed a fair night, but had some pain and flatulence, and vomited once or twice.

July 22.—There was much retching, vomiting and flatulence, no pain in the abdomen, but some in the back. The

bowels were opened after an enema. Glucose and sodium bicarbonate were given by the mouth, but could not be retained. *Mistura bismuthi et pepsinæ composita* was given, and the vomiting subsided till night time, when it recommenced. The pack was removed at 8 p.m. A mustard plaster was put on the epigastrium and barbitone, 0.5 gm., given. The patient slept from 9 p.m. until 4 a.m.

July 23.—The vomiting and retching recommenced, and an uncomfortable day was passed. Acidosis was suspected; the breath smelt faintly of acetone, but a specimen of urine could not be obtained until the evening. Glucose and bicarbonate of soda were vomited, when given by the mouth. The rectum was too irritable to retain them. At 2 p.m. the temperature was 36.9° C., the pulse-rate 90, and the respiration 36. No adventitious sounds could be heard in the chest. At 5 p.m. she was still vomiting. Trypsogen was given, but was vomited after the second dose. At 8.15 p.m. the temperature was 36.9° C., the pulse-rate 94, and the respiration 40. Chloretone, 0.5 gm., was given, and a glucose rectal saline enema. A catheter specimen of urine was taken. The examination showed: colour, pale straw; a fair amount of white urates; reaction, acid; specific gravity, 1,024; strong smell of acetone. Acetone in large quantity was detected by Legal's nitroprusside test and by Lieben's iodoform test. Diacetic acid was present. There was no albumin, sugar, bile, blood, nor pus. At 9.15 p.m., while the urine was being examined, an urgent call came from the hospital, to say that the patient was having "a heart attack." The patient seemed *in extremis*, was pale, cold, and restless, and was throwing the arms about and picking at the bed clothes. The temperature was 35.6° C., the pulse-rate 120, and the respiration 48 to 60 and definitely of a Cheyne-Stokes' type. A marked smell of acetone was detected in her breath. The abdomen was normal, except for tenderness over the liver; the liver dulness was normal. One mil of pituitary extract was immediately given into the deltoid, and 0.3 mil of adrenalin in four mils of water by the mouth. Hot bottles were placed around the patient while apparatus was being prepared for transfusion. Three minutes later the bowels were opened and wind passed both by mouth and rectum. The pulse and respiration improved slightly for a little time, but before the apparatus was ready another one mil of pituitary extract had to be given. The right median basilic vein was infused with 1.8 litres of a solution containing 2.5% of glucose and bicarbonate of soda at 41° C.. The patient's condition improved very rapidly after the infusion; the pulse-rate was 120 and its volume good. The temperature was 36.1° C., and respiration 34 and normal in character. The infusion caused very severe headache and general pains, and the patient became rather excited. At 11 p.m. 0.008 gm. morphine was given, and sips of champagne. Four mils of glucose were given hourly by the mouth. The pulse and respiration gradually became normal, and the patient could be left at 3 a.m., being then in a light sleep.

Recovery from this point was quite uneventful.

On July 25 the liver dulness was found to be reduced by 37.6 mm.. The conjunctivæ were slightly yellow. On August 15 the patient went for a holiday in better condition than for a year previous. On August 19 she communicated by letter that menstruation had commenced, and that there was a moderate loss, with some abdominal pain, but less than previously. She menstruated again for four days on September 12. There was an entire absence of "last day pain." She returned from her holiday on September 24 well and strong, though still slightly anæmic. The liver dulness had now regained the costal margin. The breathing test[4] was applied. The breath could be held for 38 seconds. There was no dysmenorrhœa in February, 1918. The patient was in very good health, and the liver dulness was normal.

Summary.

The following mistakes were made in this case:—

1. The urine was not examined for acetone previous to the administration of the anæsthetic.

2. The patient was subjected to a too long fast before operation.

3. No glucose was administered before the operation.

4. No narcotic was given before the operation.

How to avoid post-anæsthetic acidosis:—

1. Examine the urine in every case for acetone before operation.

2. Try the breathing test.[3] The patient sits perfectly quiet for five minutes, then draws a full, but not abnormally deep, inspiration. The breath is then held, with the mouth closed and the nostrils compressed with the fingers, while the time is noted. The normal period for which the breath can be held in this manner is 30 to 40 seconds. According to Stange, any period under 20 seconds contraindicates general anæsthesia.

3. (*a*) Administer 8 mils of syrup of glucose every four hours for 24 hours before operation,[6] or (*b*) adminster 1.6 gm. of pancreatin one hour before operating, and as soon as possible after operation.[7]

4. Some light food should be given four hours before the operation.

5. Give morphine, 0.01 gm., and hyoscine, 0.0006 gm., one hour before operation.

6. After the operation give glucose by the rectum and by mouth.

7. If there is much vomiting, examine a catheter specimen of urine at once.

8. Avoid chloroform whenever possible.

9. Use ether by the open method, and from a recently opened bottle only.[8]

References.

[1] *Deut. Med. Woch.*, Leipzig, Nos. 17 and 18, 1894, and 19, 1895.
[2] *Liverpool Medico-Chirurgical Journal; Practitioner*, February, 1910.
[3] *British Medical Journal*, February 5, 1911.
[4] *New York Medical Journal*, October 30, 1915.
[5] *Ibid.*
[6] *Practitioner*, February, 1910; *Lancet*, 1908, page 782; *Lancet*, 1909, page 710; *British Medical Journal*, February, 1911.
[7] *Lancet*, August 23, 1913.
[8] *Annals of Surgery*, September, 1907.

Reviews.

MATERIA MEDICA.

Although a sixth edition of Ghosh's "A Treatise on Materia Medica and Therapeutics"[1] was brought out soon after the issue of the 1914 British Pharmacopœia, yet so great has been the demand for this popular text-book that a seventh edition has now been found necessary. It has been thoroughly revised and brought up-to-date, and, of course, like its predecessor, is based on the 1914 Pharmacopœia. The drugs are classified according to their pharmacological and therapeutic actions, which is far more scientific than the old alphabetical arrangement of the earlier editions. The revision has missed mention of a number of substances which should find a place in a book such as this, and one looks in vain in the index for such names as eusol, chloramine-T and Dakin's solution. The composition of *Oleum Eucalypti* is again wrongfully given, though attention has already been called to that in this journal. As usual, the Indian drugs receive extensive mention. Short chapters on vaccine therapy and organotherapy are given at the close of the book, but these might with advantage be expanded and brought more up-to-date.

We regret to announce the death, at Oakleigh, Victoria, of Dr. F. E. Dunkley, who had practised in the district for the last 15 years. For a number of years he was a member of the Army Medical Corps and, for some time, was Acting Medical Officer of the 47th (Caulfield) Area. The late Dr. Dunkley was formerly in the Department of Public Health during the regime of the late Dr. Greswell.

[1] A Treatise on Materia Medica and Therapeutics, Including Pharmacy, Dispensing Pharmacology and Administration of Drugs, by the late Rakhaldas Ghosh and Birendra Nath Ghosh, F.R.F.P.S., Edited by B. H. Deare; Seventh Edition, 1918. Calcutta: Hilton & Co.; Crown 8vo., pp. 608. Price, 7s. 6d. net.

The Medical Journal of Australia.

SATURDAY, SEPTEMBER 14, 1918.

Our Obligation to our Colleagues.

The arrival of returned soldiers at short intervals of time in the Commonwealth reminds us that those who have done their duty to the Empire on the field of battle are coming back to civil life. They will, as far as possible, take up their former occupations. It is the desire of most persons that these men suffer no disability from their unselfish patriotism in enlisting for military service. Most citizens of the Commonwealth of Australia are in favour of the utmost generosity in the schemes of repatriation. The members of the medical profession have been able to give special aid in this work for all returned soldiers. They have, in addition, the privilege of assisting those of their own profession to enter into civil medical practice. The members of the medical profession have ever been closely associated together, so that it seems appropriate that those who have remained in Australia should welcome the opportunity of recognizing the solidarity of those who practise medicine. While there may be some who regard the duty of assisting and maintaining medical men who have been disabled, and of providing for their dependants as a national duty, which should be undertaken by the State, there will be others who believe that the medical profession can add to the pittance of starvation which will fall to many who have been accustomed to live in a high degree of comfort.

In February, 1918, the Federal Committee of the British Medical Association requested the Branches to prepare a scheme for raising a fund of money to be administered by the Committee for affording assistance to the dependants of those medical practitioners who had been disabled or killed while on active service, and to the disabled medical men. It is accepted by the majority that aid is needed for the widows and orphans of those who have given their lives for their country, for those who have experienced such disablement that they will never again be able to support or to contribute to the support of wife or children, for the families of those who have returned crippled in health to the strenuous life of the general practitioner, and for those in need of temporary pecuniary assistance on taking up practice after service at the war. Many young married men who were establishing themselves successfully in practice offered their services to the Department of Defence, and have spent a much greater time on active service than they ever anticipated. Hundreds of young men who have completed their medical training since the outbreak of the war have gone to the front before commencing private professional practice. During the meeting of the Federal Committee in August, 1918, there was an animated discussion on the best method of enabling the members of the medical profession to help one another. The tone of the discussion can be inferred from the remark of the Chairman, Dr. W. T. Hayward, C.M.G., that the South Australian Branch had been fortunate in losing proportionately few of its members, yet it would wish to bear its due share of the expense. The discussion has made it clear that the only feasible method of obtaining such a fund is by voluntary subscription. While it is easy to see that a levy by the Branches of the British Medical Association upon their members would distribute the opportunity of assisting those in need over the whole of the members and would enforce contributions from those unwilling to deal generously with their colleagues, it is doubtful whether such a levy could be made compulsory. There would also be great difficulty in deciding the way in which the money should be levied. While some would favour asking for a definite proportion of the income of each medical man, others would oppose such a tax as pressing heavily upon the poorer medical practitioners.

The proposals of the South Australian Branch have been adopted in the following form:—

(1) That a Federal Fund be established by donations from members of the medical profession in all the States.

(2) That the Fund be vested in trustees appointed by the Federal Committee.

(3) That a local committee of management be appointed by the Branch Council in each State, to consist of three members of the British Medical Association.

(4) That the Fund shall be used in assisting medical officers who have been disabled and the dependants of those who have died.

(5) That the Fund shall also be used to issue loans, with or without interest, to medical men who may require temporary financial assistance on account of war service.

(6) That to create the Fund an effort be made in each State to secure at once as large initial individual donations as possible or annual contributions.

It is a matter of congratulation that action has been taken in this important matter. For many months there has been a widespread feeling that a commencement should be made in dealing with our obligations to our colleagues who have gone on active service. Now that there is a beginning it behoves the profession to offer an example to our countrymen in our recognition of the services of military medical officers who have suffered bodily or financial loss in serving the Empire. There should be a noble emulation and a generous rivalry in making this Federal Fund a worthy tribute to our less fortunate brethren. It has been estimated that close on a hundred thousand pounds will be necessary if the profession is to shoulder the burden of the widow, of the orphans and of the maimed and to offer a fair start to those needing monetary help. This sum may appear to be a large amount to be raised by donation. It must be, however, remembered that a number of years will pass before the whole amount will be required.

The various Branches of the British Medical Association will shortly have the opportunity of deciding whether these proposals will be carried into effect. We would urge on every medical practitioner the desirability of giving effective support to this scheme. If the Fund be managed in a statesmanlike manner it will ultimately become an asset of great value to the Association. While the whole of the capital of the Fund will be needed in the early future, many loans will have been repaid by the time that provision is needed for the education of the children of our departed colleagues. No spirit of meanness should be allowed to damp the liberality of those who would care for their disabled brethren and their dependants. Even if it should appear that the profession is unable to raise the whole sum required for this purpose, the greater the amount of the Fund the more it will alleviate the lot of those who have suffered through the war.

Time is necessary for the accumulation of this money. The sooner a beginning is made the more rapidly will subscription lists be closed. The longer the delay in the institution of the Fund the more difficult will it be to obtain sufficient money to carry out the objects of the scheme. If such a Fund had been instituted in the early years of the war, it would have already reached some size. When the Fund is instituted some time may be needed to test the best methods for administration. If this experience is gained with the growth in magnitude of the Fund, it will make for efficient administration.

THE FALLING BIRTH-RATE.

It has been frequently stated as a maxim from history that the decline in the prosperity and importance of a country is preceded by a fall in the birth-rate. Those nations which are multiplying freely overrun and replace those peoples who have reached a stationary condition of population. Attention has been frequently directed to the diminution in the number of children born in Australia in proportion to the number of women. We may therefore welcome every attempt to check this fall and to increase the number of children. In the report of the Federal Council of the British Medical Association, published in the issue of *The Medical Journal of Australia* for August 24, 1918, certain recommendations are made in regard to venereal diseases, miscarriages, obstetric nurses and maternity and child-welfare, which are designed to counteract the decline in the birth-rate in Australia. The importance of dealing one by one with the factors which account for a change in the conditions of a country should never be forgotten. It is only rarely that one single cause is operative in such cases. The prevailing tendency is the consequence of many separate movements, each one of which adds its influence to the combined effect of the others.

We would emphasize the duty of medical practitioners to make their patients and the public aware of the effect of venereal diseases in bringing about sterility and miscarriage. No medical man should hesitate to warn every venereal patient of the harm that

may be done by transmitting infection to another. In this connexion modern opinion asserts that gonorrhœa is as liable to induce sterility in the woman as syphilis. Again, patients should be informed that treatment at the hands of a competent medical man will result in the improvement of the ailment and the abolition of its infectivity. While no treatment will restore a Fallopian tube which has been closed by inflammation into a physiological structure, treatment may prevent some other person falling a victim to the same condition.

In respect to the occurrence of miscarriages, every medical man should remember that an attempt should be made to ascertain the cause of the miscarriage, so that measures may be adopted to minimize the risk of another mishap. It would seem that a systematic effort is needed to enable the profession to deal with these conditions. It would be necessary for the medical attendant to continue supervision of the patient, so as to be able to regulate the habits of the patient. With such systematic hygienic and medical control, the number of miscarriages would be greatly lessened.

It has been often pointed out that the puerperal mortality in maternity homes is much less than that experienced in private practice. In his Presidential Address to the Australasian Medical Congress held in Melbourne in 1908, Professor Sir Harry Allen demonstrated how the use of antiseptic and aseptic methods had reduced the death-rate in lying-in hospitals to an almost vanishing figure. He further showed that the general puerperal mortality had not fallen greatly over a long period of years and still remained a figure of considerable magnitude. It is evident that three or four women survive out of every thousand delivered in a maternity hospital who would have lost their lives had they undergone confinement in their own homes. A definite improvement in the birth-rate would follow an extension of the practice of entering a hospital for confinement. Closely related to this question is that of the sufficient training of obstetric nurses. A definite course of systematic instruction, lasting some considerable time, is needed to inculcate the principles of aseptic surgery. No amount of verbal instruction can replace the formation of habits which require repeated practice and performance before they are ingrained. The nurse must see how to be bacteriologically clean. She must learn by repetition to attain an aseptic technique.

The registration of obstetric nurses aims at preventing women who can only endanger the lives of patients on whom they attend, from continuing to act as midwives. No fatality is more saddening than that of the woman in the prime of life and fullness of health cut off during child-birth. It behoves every medical man to use his influence to ensure that women receive competent care during their travail.

SERUM PROTEINS AND IMMUNITY.

For a number of years evidence has been accumulating concerning an association between the immune substances appearing as a result of the introduction of antigens into the animal body, and the globulins of the blood serum. It has been found that the cholera immune bodies exist in the globulin fraction of the proteins of the blood. The diphtheritic antitoxin is precipitated along with the globulins from the antitoxic serum. This fact forms the basis of certain of the modern methods of concentrating diphtheritic antitoxic serum. Some evidence has been brought forward that other forms of immune bodies depend for their activity on the globulin portion of the serum. Thus, in the precipitin reaction, it has been found that the precipitate which is produced by the reaction between an antiserum and its homologous protein is produced in exactly equivalent amount if the protein reacts with the separated globulins of the antiserum. The agglutinating powers of various blood sera likewise depend upon substances associated with the globulin fraction of the serum. H. R. Dean has brought forward evidence to show that the addition of solutions of globulin separated from natural blood serum augments the amount of precipitin formed in a precipitin reaction, and also the complement-absorbing power of an antiserum.

It has been asserted that an increased amount of globulin can be found in the blood of animals which have been immunized by the injection of various forms of antigen. A recent study has been made by E. S. Schmidt and C. L. A. Schmidt[1] on the result of injecting suspensions of pure protein on the proportions of globulin and albumin in the serum of rabbits. The proteins which have been employed for the purpose have been deutero-albumose, globin, casein and protamine sulphate. Although a wide range of variability is found in the proportion of the albumin and globulins in the blood serum of normal rabbits—a variation which is considerable in the same rabbit from time to time—the authors are of opinion that they have done a sufficiently large number of determinations to arrive at the conclusion that no increase in the amount of globulins in the blood serum necessarily accompanies the production of immune substances. On many occasions they have succeded in giving rise to anti-

[1] *Journ. Immunology*, Vol. II., page 343, June, 1917.

body formation in rabbits by well-regulated doses of antigen, without increasing in any way the amount of globulin in the blood.

JUBILEE OF SAINT VINCENT'S HOSPITAL, MELBOURNE.

We are publishing in another column some information concerning the silver jubilee of St. Vincent's Hospital, Melbourne. This hospital was founded about 25 years ago by the Sisters of Charity as a medical mission to the sick poor of Fitzroy, a suburb of the southern capital. A small terrace, fronting the Victoria Parade, was used as the site of the hospital. A department for out-patients was instituted, and, within a few years, sufferers came from a wide area to seek relief. Every effort was made by the Sisters to secure the highest medical skill and to afford the most efficient nursing to the sick attending the hospital. As a result, the hospital grew rapidly and became unable to cope efficiently with the great numbers of patients who wished to be treated within St. Vincent's Hospital. A new, modern hospital was erected alongside the original site. This structure was replete with every convenience for hospital administration. In many ways the building served as a model of what a hospital should be at the present day. After the new building had been completed, arrangements were made to utilize the hospital as a clinical school in connexion with the medical faculty of the University of Melbourne. This clinical school has now been used with success for ten years. At the present time the volume of medical work carried out at St. Vincent's Hospital makes it the second largest general hospital in the State of Victoria. The rapid progress in the size of the hospital and its popularity with the sick of every creed is due to the unselfish devotion and loving care of the Sisters in charge of the wards. Within the walls of St. Vincent's Hospital patients do not feel that they are inmates of an institution, but that they are being healed and comforted among the surroundings of a home. The care expended on the preparation of the food for the patients and the dainty manner in which the meals are offered have had much to do with the formation of this sentiment. The policy of requiring the medical staff to devote their public ministration solely to St. Vincent's Hospital has assisted in maintaining the high level of medical and surgical practice. In selecting their staffs the Sisters have ever aimed at obtaining the highest medical skill, regardless of the religious creed of the medical practitioner.

The silver jubilee of this hospital, with its special effort to diminish the indebtedness of the hospital, should command the attention of every person interested in the relief of pain and suffering. No more worthy object can be found for the exercise of that charity which binds together mankind of different nations and beliefs.

JOHN McGARVIE SMITH.

We regret to announce the death of John McGarvie Smith, who died at Woollahra, New South Wales, on September 6, 1918, at the age of 74 years. The deceased gentleman devoted much attention to scientific matters, especially in connexion with the chlorinating process for extracting gold and with the application of vaccination against anthrax in sheep. He was successful in preparing an anthrax vaccine, the formula of which he recently presented, with munificent generosity, to the State of New South Wales, along with £10,000 as an endowment for an institute for the study of diseases affecting stock. At the same time he donated his fine laboratory and its costly equipment to the State as a home for the newly-established institute. During his life Mr. McGarvie Smith was greatly interested in the discovery of an antidote against the venoms of Australian poisonous snakes. At one time or other he handled many hundreds of these reptiles, taking the poison with his own hands. It is reported that he arrived at the conclusion that it was impossible to prepare a single antidote against the toxic symptoms of the several Australian venomous snakes. He was a successful man of business and an original and enterprising scientist, who was possessed of noble liberality.

Naval and Military.

CASUALTIES.

In the 427th list of casualties appears the name of Captain John Sidney, who died of wounds on August 9, 1918. From the same list we regret to learn that Captain Hugh Compson Trumble has been wounded on the second occasion.

HONOURS.

The following notices concerning the award of the Distinguished Service Order, the Military Cross or Bar to the Cross have been republished in the *Commonwealth of Australia Gazette*, No. 137, of August 30, from the *London Gazette* of April 6, 1918. The awards have already been announced in *The Medical Journal of Australia*.

Awarded the Distinguished Service Order.

Major William Bannerman Craig, A.M.C. For conspicuous gallantry and devotion to duty during an attack. After the aid post had been blown up he attended the wounded and organized bearer parties in the open. Though wounded, he persisted in his work until disabled by another wound.

Major William Allan Hailes, A.M.C. For conspicuous gallantry and devotion to duty in attending to four wounded men in the open under heavy fire and conveying them to cover. His example stimulated the stretcher-bearers to great efforts under most trying circumstances.

Major Harrie Bertie Lee, M.C., A.M.C. For conspicuous gallantry and devotion to duty. He was in charge of the organization of bearer reliefs during an action, and hearing that the officer in charge of the forward bearer parties had been killed, he at once went forward under heavy fire and took charge. He located the new regimental aid posts forward of the former line, and with absolute disregard of danger arranged for the evacuation of the wounded from these new posts through a heavy barrage. His quick grasp of the situation and prompt and courageous action were of inestimable value.

Major Robert Maxwell McMaster, A.M.C. For conspicuous gallantry and devotion to duty in tending the wounded continuously for ten hours under shell fire. Several of his bearers were killed or wounded, and it was only with the greatest difficulty that he was able to save the wounded from being killed or buried alive.

Awarded a Bar to the Military Cross.

Captain Charles Herbert Leedman, M.C., A.M.C. For conspicuous gallantry and devotion to duty. He worked for four days in the open attending to the wounded, in the course of which he dressed 300 cases. Seven intense barrages were put down by the enemy, but he went on with his duties, showing a total disregard for danger. His courage, devotion to duty, and endurance greatly inspired all ranks, and undoubtedly saved many lives.

Captain Patrick Joseph Francis O'Shea, M.C., A.M.C. For conspicuous gallantry and devotion to duty. He dressed the wounded in the open after the aid post had become congested, and organized stretcher par-

ties under heavy fire. His resource and courage saved many lives. He afterwards went round the shell-holes with a party of bearers, dressing and collecting the wounded, with a fine disregard of personal danger.

Awarded the Military Cross.

Captain Douglas Lewis Barlow, A.M.C. For conspicuous gallantry and devotion to duty during an attack. He advanced with the battalion, established his aid post, and dressed the wounded and assisted in their removal under constant shelling. Owing to casualties among bearers he was cut off from the ambulance clearing post for several hours, and it was mainly owing to his exertions that the wounded received attention and shelter during this period.

Captain John Herald Balfour Brown, A.M.C. For conspicuous gallantry and devotion to duty when in charge of the forward line of evacuation for eight hours after his commanding officer was wounded. His reconnoitring of ambulance posts and regimental aid posts through the area of shell fire was of great assistance in controlling the evacuation. He supervized the loading of wounded into horse ambulances and organized the line of bearers and prisoners, and it was due to his action that great congestion was prevented.

Captain Stuart Galloway Gibson, A.M.C. For conspicuous gallantry and devotion to duty. While he was in charge of a detachment at a loading post the enemy opened a heavy bombardment. Though nearly all the shelters were demolished, he continued at his work of removing casualties throughout intense shelling. He set a splendid example of courage and devotion to duty.

Captain Stanley Arthur Railton, A.M.C. For conspicuous gallantry and devotion to duty. During a very heavy barrage and an enemy counter-attack he attended to the wounded in the open with complete disregard to his personal safety. His courage and coolness in carrying on his work under such conditions resulted in the saving of many lives.

Captain Eric William Beresford Woods, A.M.C. For conspicuous gallantry and devotion to duty. For several days he worked at his aid post under very heavy shell fire, attending to all stretcher cases in the open with great courage and complete disregard of danger. His untiring energy and organization saved many lives.

APPOINTMENTS.

Australian Imperial Force.

Army Medical Corps.

To be Major—

Honorary Major H. P. Brownell, D.S.O., Australian Army Medical Corps Reserve. Dated 1st August, 1918.

The appointment of the undermentioned officers has been terminated from the date opposite their names:—

Major W. H. Donald. Dated 15th August, 1918.

Major H. V. P. Conrick, D.S.O. Dated 14th August, 1918.

Public Health.

WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the fortnight ending August 17, 1918:—

	Metropolitan. Cases.	Rest of State. Cases.	Totals. Cases.
Scarlatina	17	6	23
Diphtheria	21	16	37
Pulmonary Tuberculosis	7	4	11
Erysipelas	2	1	3

QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the fortnight ending August 24, 1918:—

Diseases.	No. of Cases.
Enteric Fever	9
Scarlatina	24
Diphtheria	128
Pulmonary Tuberculosis	14
Puerperal Fever	3
Erysipelas	6

TASMANIA.

The following notifications have been received by the Department of Public Health, Tasmania, during the fortnight ending August 24, 1918:—

Diseases.	Hobart. Cases.	Launceston. Cases.	Country. Cases.	Whole State. Cases.
Enteric Fever	0	0	3	3
Diphtheria	1	3	19	23
Pulmonary Tuberculosis	3	1	6	10
Puerperal Fever	1	0	0	1
Poliomyelitis	0	0	1	1
Ophthalmia Neonatorum	0	2	0	2

SOUTH AUSTRALIA.

The following notifications have been received by the Central Board of Health, Adelaide, during the week ending August 24, 1918:—

	Adelaide. Cs.	Adelaide. Dths.	Rest of State. Cs.	Rest of State. Dths.	Total. Cs.	Total. Dths.
Scarlatina	2	1	25	0	27	1
Diphtheria	3	3	20	3	23	6
Pulmonary Tuberculosis	3	4	29	8	32	12
Erysipelas	2	0	5	0	7	0
Morbilli	1	0	3	0	4	0
Pertussis	0	0	9	0	9	0

VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the fortnight ending August 25, 1918:—

	Metropolitan. Cs.	Metropolitan. Dths.	Rest of State. Cs.	Rest of State. Dths.	Total Cs.	Total Dths.
Enteric Fever	0	0	1	0	1	0
Scarlatina	56	0	53	1	109	1
Diphtheria	214	7	169	4	383	11
Pulmonary Tuberculosis	31	10	16	8	47	18
C'bro-Spinal Meningitis	4	—	0	—	4	—
Puerperal Fever	1	—	1	—	2	—

NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending August 31, 1918:—

	Metropolitan Combined District. Cs.	Metropolitan Combined District. Dths.	Hunter River Combined District. Cs.	Hunter River Combined District. Dths.	Rest of State. Cs.	Rest of State. Dths.	Total. Cs.	Total. Dths.
Enteric Fever	1	1	1	0	3	0	5	1
Scarlatina	19	1	0	0	10	0	29	1
Diphtheria	31	1	5	0	66	1	102	2
*Pul. Tuberculosis	18	11	0	0	1	0	19	11
C'bro-Sp'l Menin.	4	4	1	0	0	0	5	4
Poliomyelitis	1	0	0	0	0	0	1	0

* Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountain Shire and Katoomba Municipality.

Abstracts from Current Medical Literature.

MEDICINE.

(85) Malaria in the Army.

Lieutenant-Colonel E. J. Williams remarks that the incidence of a large number of cases of malaria among the troops serving in Egypt, Greece, Mesopotamia and other countries where the disease is prevalent calls for serious consideration (*Canadian Med. Assoc. Journ.*, June, 1918). Some of the men have already returned to England, Canada, Australia and other countries. Many more will follow. The great majority are carriers. Although the malarial area is defined as lying between 63° N. and 35° S. latitude, cases of malaria exist far beyond these limits. The geography of malaria may alter from time to time. This is due to conditions other than temperature alone. The low-lying, undrained, swampy areas are the most favourable for the development of the anopheles. A malarial area may be created by the damming of small streams, causing a flooding of the adjacent land, or pools may form along the edges of a stream and prove a breeding-ground for the anopheles. Certain conditions tend to precipitate an attack of malaria in individuals in whom the disease seems to have been dormant. These are (1) a change from a warm to a cold climate, (2) increased activity, causing extreme fatigue, and (3) sudden change in the mode of living, such as change of diet, hours of work, reduced period of rest and sleep, etc. In the East the commonest exciting causes were exhausting work and high temperature. Certain races and individuals are less susceptible than others. The negroes of Africa and the West Indies, the Chinese and the Malays seem to enjoy comparative immunity. The type most commonly met was the benign tertian, there being only eight cases of the malignant type. Often malaria was complicated with baciliary dysentery. Anæmia was marked in over 50% of all cases, and was commonly accompanied by emaciation, due to the inability of the patients to take or assimilate food during the attacks, which in many cases recurred frequently. The large doses of quinine taken may also have been a contributing cause. No cases of malarial cachexia were noted in the personnel. Cardiac dilatation was very common in recurrent cases. Full details are given as regards treatment, and it is observed that the value of quinine is enhanced by the addition of arsenic in the majority of cases. The intra-muscular method of administering quinine has met with better results on the whole than that by mouth. Still, abscess formation at the site of injection is not uncommon, and so this method does not meet with general favour. The intravenous method is the most efficient, and, where ordinary care and skill are shown, practically devoid of danger. In severe cases 2 gm. may be given in twenty-four hours. In malignant cases, and especially those of the cerebral type, this is the only form of administration which seems to produce any appreciable result.

(86) Some Phases of Endocrinology.

W. V. P. Garretson contributes a thoughtful article on endocrinology (*Medical Press*, June 26, 1918). An understanding of endocrinic function is of paramount importance to one who practises medicine intelligently. Sajou is quoted: "The thymus supplies to all tissues the excess of phosphorus in organic combination (possibly as nucleins) required during the development of the body, to build up its cell nucleins." The thyro-parathyroid secretion sensitizes these nucleins to the action of oxygen. The adrenal solution endows the blobd with its oxygenizing properties. The pancreas supplies the ferments, which, in the intestinal canal and in nutritional leucocytes, convert food materials into products harmonious to, and for the building up of, tissue cells, *i.e.*, for the anabolic stage of metabolism; the same pancreatic ferments carry on the katabolic phase of metabolism. All endogenous or exogenous substances which are not appropriate for tissue building, bacteria, toxins, venoms, etc., are subjected, in the phagocytic leucocytes, in the tissue cells, in the lymphatic system and in the blood plasma, to the katabolic phase of metabolism, which serves to convert them into eliminable end-products. The defensive mechanism of the body thus forms part of its nutritional processes, the whole being dominated by the internal secretions. Clinical studies have proved that certain physiological and structural markings are constant to certain glandular types. The eyebrows in sub-thyroidal states are very scanty, especially so in the outer third. In the adrenal types they are usually thick, and meet in the mid-line bridging the nose. Thyroidal teeth are well formed, white, clean and show good enamel. Thymus teeth show pitting and poor enamel, due to deficiency of calcium salts. In pituitary types the teeth are separated or spaced and are also white or glistening. Adrenal teeth show dark markings or spots, similar to chromaffin deposits. Gonadal teeth exhibit torsion, disproportion, and frequently absence or semilunarity of the lateral incisors. The skin in adrenal types always show pigmentation-freckles, moles or larger patches of pigmentosis. The thyroidal skin is usually blond, clear and smooth. In hypothyroidal states it is rough and scaly. The vasomotor reactions of the skin are also important. The remarkable influence of the pituitary gland on structural conditions is demonstrated when hypersecretion of the anterior lobe occurs, creating, before puberty, giantism during adult life, acromegaly and in old age shrinking. The extremes of thyroid secretion create exophthalmic goitre or myxœdema or cretinism. The domination of the pituitary gland produces feminism in the male, while the domination of the adrenals makes for masculinity in the female. The pituitary individual is musical, has an abnormally acute sense of rhythm, and is prone to diseases attended by periodicity (*e.g.*, malaria) and to syphilis. Right-sided symptoms point to pituitary dysfunction, left-sided to adrenal dysfunction.

(87) Meningitis Complicating Parotitis.

J. Kaunitz (*Journ. Amer. Med. Assoc.*, May 18, 1918) records three cases of meningitis occurring as sequelæ to attacks of parotitis. He states that 150 cases of meningitis following mumps have been recorded, although the majority of observers regard this complication as very rare. He holds the opinion that the milder manifestations are probably overlooked. According to Acker, the pathology is that of a sero-fibrinous meningitis, involving more especially the base of the brain. The signs and symptoms resemble to some extent those of tubercular meningitis. Tubercular meningitis, however, is preceded by a period of declining health, the development of the disease is gradual, and the acme is reached between the second and the third weeks. In epidemic cerebro-spinal meningitis the onset is acute, and high fever is present from the beginning. Mumps meningitis begins insidiously, with constipation, headache and vomiting, but little or no fever. The height of the disease is reached in from one to two days, and the meningitis usually terminates after the course of less than a week. The cerebro-spinal fluid is clear, or slightly opalescent, and contains many mononuclear cells. The diagnosis, however, is usually manifest by the association of the signs of meningitis or meningismus with the affection of the parotid gland.

(88) Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis.

Alvis E. Greer summarizes thirty-two cases and reports in detail six cases treated by this method (*Journ. Amer. Med. Association*, May 25, 1918). One, with chronic fibroid tuberculosis, was temporarily benefited, but such cases should not be treated by this method unless large unilateral cavities are present, with profuse expectoration. In acute pneumonic tuberculosis, improvement was striking. Night sweats ceased, cough lessened, expectoration ceased, temperature declined and weight increased. In five cases hæmorrhage was successfully combated. As regards technique, it is better to inject small amounts of nitrogen gas, from 300 c.cm. to 500 c.cm., at short intervals, than to use larger amounts at longer periods. Several patients received temporary set-backs because from 1,000 c.cm. to 1,200 c.cm. were used at single injections. Pleural effusions have more frequently followed in these cases. No cases of pleural shock, pleural infection, gas embolism, harmful puncture of the lung or cardiac dilatation were encountered. Subcutaneous emphysema was frequently encountered in the earlier cases, but was never alarming. It was believed to have been due to a large amount of gas having been injected and the patients having been allowed out of bed too soon. Excessive

coughing will cause this complication. Where pleural effusion occurred, no attempt was made to withdraw the fluid, as the amount was never large. The injections were continued, but smaller amounts were given at longer intervals. The complication was looked upon as favourable, as every patient in whom it occurred was benefited. First stage cases, unilaterally involved, should be treated by artificial pneumothorax.

NEUROLOGY.

(89) State Care of the Feeble-Minded.

Charles W. Burr (*Arch. of Pædiatrics*, February, 1918) thinks the State need not worry because large numbers of its citizens have only enough intellect to be "hewers of wood and drawers of water," so long as their moral development is normal. There is no need for everyone to possess mind in large amount. The world to-day needs brawn and morals more than much schooling. He believes that we are wasting millions yearly trying to make scholars of youths who can learn to be useful in the university of toil, but who can acquire nothing in the university of scholasticism, except foolish notions about freedom of thought and the importance of professorial piffle. We have no accurate statistics as to the number of idiots and imbeciles; we know only of those in institutions. We can only guess how many are at large, but the author is sure there are very many more outside of than within institutions. Parents mistakenly spend much care and money in the vain attempt to heal these abortions of nature. The feeble-minded who are most dangerous are the middle and high and highest grade imbeciles (morons). They are bound to be criminal; they murder, steal, burn, rape, indeed, commit every crime possible; they procreate children like themselves. There is only one means of treatment, restraint for life. No medical or surgical measures can cure these defectives, no training fit them to be at large. To send a moron to an institution for a few years, and then out into the world, ends in his downfall. He must have permanent institutional restraint. The ideal institutions would be farms scattered through the State. Little attention need be given to literary training; no amount of education can create a moral sense. The notion that imbeciles can be made moral by training is false. The suggested asexualization of female imbeciles is a snare; it would make them centres of infection. The only way to reduce the frequency of imbecility is by hardening and strengthening the moral sense of the community and by decreasing physical disease.

(90) The Reflex Functions of the Spinal Cord.

Riddoch (*Brain*, Vol. XL., 1918) has used the unprecedented opportunity afforded by the war to settle more definitely the vexed question whether or no the spinal cord in man, when completely dissociated from brain control, can function by itself; and, if the reflex activities are preserved, whether these compare at all with those known in the spinal animal. The paper is a long and important one, which should be read *in extenso*, but these are some of the conclusions: In complete division of the spinal cord the clinical picture as hitherto described is imperfect. The severed cord may not only recover its reflex functions, but become highly excitable. There are three clinical stages: (1) muscular flaccidity, (2) reflex activity, (3) gradual failure of the reflex functions. The stage of muscular flaccidity, lasting from one to three weeks, corresponds with the period of deep depression from "spinal shock." The paralysed muscles are toneless and flabby, superficial and deep reflexes are absent. There is complete anæsthesia and analgesia. The skin is dry and readily becomes gangrenous, and there is retention of urine and fæces. In the stage of reflex activity, reflexes, many of them complicated, can be evoked from almost any part of the paralysed region. The first reflex to appear is most often a response to nocuous stimulation of the foot. In the full development of this stage, a nocuous stimulus applied, not only to the sole, but to any part of the lower extremity, gives rise to a flexion reflex, consisting of flexion at the hip and knee, dorsiflexion of the ankle and upgoing toes. When reflexes can be evoked with ease, an excessive reaction, called a "mass reflex," can be obtained; its components are flexor spasm of the abdomen and legs, evacuation of the bladder, and sweating, below the lesion. Also, there may be a strong genital reflex, even erection of the penis and seminal emission. Knee and ankle jerks can be evoked, but never an ankle clonus. During this stage the bladder and rectum act automatically, hyperidrosis may occur, and the skin becomes more healthy and bed-sores may be induced to heal. The third stage of gradual failure of the reflexes precedes death, and is due to toxic febrile complications. The writer also compared the manifestations in complete division with those in some less complete lesions, and found no signs by which we can be certain the cord has been anatomically divided. But whereas movements of the flexor type were the only primary motor reactions in complete transection, movements simulating progression, or movements entirely extensor in type, may appear in incomplete transections. There are also differences in position. And, in the second stage of reflex activity, the patient with incomplete division is usually subjectively aware that he has legs. Further, homolateral or bilateral extension of the legs, analogous to the extensor thrust of Sherrington, may occur. Lastly, in all cases pain is the most effective stimulus in provoking reflex movements.

(91) Criteria for the Evaluation of Mental Tests.

Florence Mather (*Mental Hygiene*, April, 1917) utters a warning against the too general and too uncritical use of mental tests. In the first enthusiasm testing became largely a method of plus and minus, "his mental age was so much," all crime was feeble-mindedness, all immorality spelt lack of sufficient mentality for self-control. The psychological significance of the tests, the controlling factors in the environment and the physical handicaps of the individual were largely ignored. Many of the so-called Binet-testers could not have detected these, nor have evaluated them, even if they had desired to, because they doubly lacked training and experience. There has been so much variation in test-results reported by different examiners that nowadays attempts are being made to obtain a broader and more detailed standardisation. The mental-defective expresses his defects in more ways than one, and it is the sum of everything in the physical, mental and environmental picture which constitutes and determines whether a child is normal or abnormal. Mental tests individually and serially are not final; they are able to record the grosser quantitative differences between individuals, but not the qualitative variations. We should recognize their shortcomings, so that we may improve on them." When all of the individual variations of the subject have been studied and evaluated, when sufficient data have been assembled to make a clinical picture of brain activity which is coherent and complete, then, and then only, is diagnosis allowable.

(92) The Flow of Lymph in Nerves.

Alford (*Journ. of Nerv. and Ment. Dis.*, February, 1918) referred to the hypothesis which has been advanced by various writers, that there is a flow of lymph along nerve trunks; an hypothesis which has been used in endeavouring to explain the situation of the lesion in general paralysis, *tabes dorsalis, herpes zoster* and other affections of the nervous system, as well as to account for some of the facts bearing on tetanus, rabies and acute poliomyelitis. He referred also to the experimental work, particularly that of Orr and Rows, which has been performed and advanced in favour of this hypothesis. Then he attempted to repeat and amplify this experimental work, and made the negative discovery that the injection of a solution of iron salts, or of fuchsin, Indian ink, ether or turpentine into the nerve trunks, and subsequent examination of the tissues, yielded no evidence of the existence of an ascending lymph stream. He made the positive discovery, however, that certain substances, particularly turpentine and ether, when injected into nerve trunks, did flow, not in lymph spaces, but under the sheath of the nerve, for long distances, and might enter the subarachnoid and subdural spaces. Therefore, he concluded that it was the special quality possessed by the substance injected, not the presence of a lymph stream, which accounted for the extension, and for some of the results of other observers. He found, in addition, that ether injected into the infraorbital nerve of dogs ascended and caused degeneration in the Gasserian ganglion, accordingly he recommended such an injection in the treatment of trigeminal neuralgia.

British Medical Association News.

MEDICO-POLITICAL.

An extraordinary general meeting of the New South Wales Branch was held at the B.M.A. Building, 30-34 Elizabeth Street, Sydney, on August 23, 1918, Dr. A. A. Palmer, the President, in the chair. The meeting had been convened, in accordance with an Article of the Branch, on the requisition of 23 members.

Dr. Robert Henry Jones moved:—

> That the resolution of the Branch on June 14, *viz.*, that no member shall permit or be a party to the publication of any specialty practised by him or of his hours of consultation in any telephone list of subscribers, be rescinded.

Dr. Jones related the circumstances which had led up to the passing of this resolution. The Council of the Queensland Branch had communicated with the Council of the New South Wales Branch for the purpose of ascertaining whether practitioners who specialized in any particular branch of medicine were permitted to record their specialty in the telephone book. He pointed out that for a quarter of a century ophthalmic surgeons in Sydney had maintained the practice of making this entry in the list of telephone subscribers. The Branch, at a meeting held on June 14, 1918 (see *The Medical Journal of Australia*, June 22, 1918, page 524) had considered the matter, on the invitation of the Council, and had passed a resolution which would render it an offence for any one to continue this practice.

In referring to the summarized account published in this journal, Dr. Jones took exception to the statement that the Ophthalmological Society of New South Wales had been communicated with. Dr. Jones stated that the Branch Council had not communicated with the Ophthalmological Society in connexion with this matter. The members of the Society considered that they had been slighted. The second mistake made in the account of the meeting was that the original motion was put to the meeting and was carried by a large majority. He did not consider that 17 members voting for and 14 voting against constituted a large majority. He did not consider that 17 practitioners should be able to determine the conduct of 100 or more specialists.

Dr. Jones considered that, in submitting a motion of the kind, the Council should have been armed with a good reason for its adoption. The only reason, as far as he could ascertain, that had been urged in its favour was that the practice constituted an advertisement. The ophthalmic surgeons denied this. He defined an advertisement as an improper means for obtaining patients. The reason why the ophthalmic surgeons included this term after the entry of their name in the telephone list was that they wished to prevent people who were seeking the assistance of medical practitioners other than ophthalmic surgeons from coming to them. He asked whether anyone had ever heard of a telephone book bringing a doctor patients. He maintained that it was quite a proper thing to do for any practitioner who confined his practice exclusively to one specialty to say so. It had been stated that this practice did not obtain in other places. He, the speaker, contended that it did. He was unwilling, however, to accept the practice in other places as a guide for them in New South Wales. The ophthalmologists and rhinologists in Victoria worked at contract rates. The New South Wales ophthalmologists certainly had no desire to emulate their Victorian colleagues in this respect. Reference had been made in the report to Saundby's opinion. After all, it was only the opinion of one man. If a man wrote a book in another country and at another time, it should not be allowed to affect a well-established custom. He maintained that it offended no ethical law. It was merely a convenience for the public. It had been suggested that a practitioner's door plate was the only legitimate means of advertisement to the public. What was the use of a door plate when a patient wanted to ring him up from the suburbs?

Dr. Jones emphasized that the practice was of importance to the ophthalmic surgeons. It was a means of distinguishing them from unqualified practitioners. He referred to an optician of his name who called himself an eye specialist. Many patients, intending to consult him, had gone to this unqualified person. In conclusion, he stated that the resolution aimed at the removal of an imagined grievance. No exception had ever been taken to the practice before, and it should be allowed to stand as it was.

Dr. Guy Antill Pockley gave his reasons for seconding the motion to rescind. In the first place, he maintained that the law of custom could not be overlooked. The laws of the country were based on customs. This custom had obtained for 30 years. He maintained that there was no justification for forbidding the practice of anything that had been the custom for so long, unless a specific instance of abuse could be brought forward.

In his opinion, all ethical laws affecting the medical profession should be based on the practitioner's duty to the public. If they were based on petty professional jealousies, they would bring the profession into ridicule. He maintained that the telephone book was the commonest form of directory in use. He considered it most galling, both for the practitioner and for the patient, to make an appointment and then to find that the patient was seeking treatment for a hernia or fracture. In his experience, this was of frequent occurrence. While he admitted that the resolution would not affect him, the speaker, he considered that it would be a considerable hardship to the mover of the resolution. Dr. Jones had suffered financially and in his personal reputation for having been confused with an unqualified practitioner of the same name.

There was considerable analogy between the practice of stating the specialty in the telephone book and having it engraved on the door plate. It had been stated that this was not done in England. He had been informed on good authority that the practice was quite common, except in the neighbourhood of Harley Street. He referred to the publication of details by members of the legal profession for the guidance of those seeking a good lawyer. It was well known that the legal profession were very particular about correct ethical behaviour.

Dr. Pockley then turned his attention to the ethical aspect of the question. The resolution assumed that the practice constituted a breach of ethics. The definition of the word "ethics" in the *Encyclopædia Britannica* was "the philosophy, not the science, of moral principles." According to the Oxford Dictionary, ethics was the science of moral principles. It thus appeared to be very doubtful as to what ethics really meant. The only accusation that had been made was that the announcement was an advertisement, and that it brought them some work. He claimed that this was not the case. He also denied that it was harmful to the public or that it gave the ophthalmic practitioners an advantage over their fellow-practitioners. He thought, on the contrary, that it was a convenience, both to their fellow-practitioners and to the public. He held that it was the right of a man who confined his practice to the treatment of one organ, to announce that he was a specialist, and he maintained that this right should be respected. There might be abuse, if practitioners who were not pure specialists made the announcement that they were.

Dr. Pockley used the argument that, as they existed under the protection of the law as they stood, it was not necessary to change those laws. After a brief reference to the action of the Council in regard to the practice of pathologists, he stated that the resolution created a rule which was either old-womanish or pettifogging. He concluded by claiming that, if the Council were consistent, they should forbid all forms of advertisement, including the appearance of the title of doctor or description of surgeon in directories and on name plates and the use of a red lamp.

Dr. E. A. D'Ombrain held that the entries in the Medical Directory in England were undoubted advertisements.

Dr. F. Antill Pockley claimed that the ophthalmic surgeons were a respectable section of the community, and that they expected the Council to stand by them and help in the fight against unqualified practitioners. The ophthalmic surgeons were the only section of the medical profession who were severely affected. Nine-tenths of the refraction work was done by unqualified oculists. Dr. Pockley thought that the Council should recognize that there was unfair competition. It would have been far better had they assisted in the fight, instead of splitting straws and irritating the ophthalmic surgeons. He maintained that the only real specialists in the medical profession were the ophthalmic surgeons and the dentists.[1] He maintained that there was no difference between the announcement on a door plate of a specialty and the announcement in the telephone directory.

Dr. R. Gordon Craig wished to correct a few erroneous

[1] It is unusual to regard dentists as members of the medical profession.

statements which had been made. The voting on the resolution on July 14 was not, as stated by Dr. Jones, 17 to 14, but 28 to 17. He claimed that it was a large majority. He was further of opinion that there was as much reason to take exception to 17 men speaking in the name of all the ophthalmic surgeons as to take exception to 28 votes determining the policy of the Branch. After all, the meeting had been duly announced, and every member had an opportunity of being present and recording his vote. Dr. Craig asked the question: "If this is not an advertisement, what is it?" He referred to a publication, called the Red Book; in which there was a list purporting to be a list of ophthalmic surgeons in practice. This demonstrated the abuse that might arise from this custom. He claimed that other sections of the profession should have an equal right to adopt the same procedure as the ophthalmic surgeons. The second error was contained in the statement that the practice had obtained for 25 or 30 years. A search had been made through the telephone directories, and it had been found that in 1902, for the first time, one ophthalmic surgeon appended these words to his name in the list. It was not until four years later that the other ophthalmic surgeons of Sydney found themselves compelled in self-defence to adopt the same procedure. The custom had therefore prevailed since 1906, that was for a period of 12 years. No exception had been taken to the custom. For his own part, this was due to the fact that he was unaware that it obtained. In regard to the statement that the practice was followed elsewhere, he wished to make it quite clear that the Council had been definitely informed that this was not the case in Queensland, in Victoria or in South Australia. He held the opinion that the perpetuation of the custom would be very dangerous, chiefly because each year the medical schools were receiving a larger proportion of students whose antecedents lacked the traditions that had characterized the profession in the past. It would be increasingly difficult to maintain the same standard of ethics. Dr. Craig held that the only legitimate advertisement for a medical practitioner was the excellence of his work. He claimed that there was no argument sufficiently potent to justify the rescinding of the resolution.

Dr. F. Antill Pockley interposed with an explanation. He had used the same name plate for 32 years, and had naturally assumed that the words which appeared on it were also used in the telephone directory. He recognized no difference between the two.

Dr. F. P. Sandes was extremely doubtful whether Dr. Guy Pockley's claim that he was constantly being worried by patients who wished to consult a gynæcologist or a general surgeon, should be taken very seriously. He himself claimed to be a pure specialist. He was very rarely worried in this way. He took exception to the statement that the Council was old-womanish and pettifogging in its actions. The Council had dealt with this matter after very careful consideration, had referred it to two committees and had used every constitutional means in bringing it before the Branch. The regulation contained in the resolution had been adopted by the Branch after notice on the business paper extending over 40 days. The question of custom and precedent had been raised. He asked the members to consider how the custom had arisen. In regard to precedent, he pointed out that in three States—Victoria, Queensland and South Australia—the British Medical Association was opposed to the practice. If it were allowed for ophthalmic men, it must be allowed for others, and in the future he presumed that the telephone book would contain entries such as "Specialist for Diseases of the Kidney and Bladder," "Surgery and Twilight Sleep," and so forth. He held that the rule forbidding medical practitioners to insert advertisements in any publication should be held to govern this special instance. He did not agree with Dr. Pockley that the ophthalmic surgeons were alone in having to meet the competition of unqualified practitioners. The difficulties of the general practitioner with the prescribing chemist were just as severe. In his opinion, the custom of announcing a specialty on a door plate or in the telephone book was not a guide to the public, and was of no value to the profession.

Dr. L. R. Parker thought that the practice was a harmless one, and that it contributed to the convenience of the public.

Dr. Archie Aspinall instanced confusion which had arisen between two ophthalmic practitioners with similar, but not identical names. One of these men had told him that he thought the custom was valueless, and that he would prefer that it did not exist.

Dr. A. E. Mills spoke in favour of the motion for rescission on the ground that the practice was for the convenience of the public.

Dr. W. H. Crago objected to the attack which had been made on the Council. He himself was strongly of opinion that patients were not obtained through the agency of the telephone book. He called attention to the fact that the words "ophthalmic surgeon" had not saved Dr. Jones from being confused with the optician of the same name.

Dr. Sinclair Gillies asked the members to consider the effect which the rescinding of the resolution would have. If the eye specialists had the right to do this thing, it would be extremely difficult, if not impossible, for the Council to prevent men who called themselves specialists from adopting the same practice.

In the continued discussion, Dr. T. W. Lipscomb, Dr. W. F. Litchfield and Dr. S. Sheldon spoke against the rescission, while Dr. John Morton and Dr. Richard Arthur spoke in favour of it.

Before calling on the mover to reply, Dr. A. A. Palmer, the President, stated that he had never seen so many ophthalmic surgeons at a meeting of the Branch before. He hoped that it was a sign that their interest in the proceedings of the Branch had been awakened, and that in future they would attend the meetings and contribute papers for discussion. He pointed out that the Council was of opinion that, in the long run, the custom involved in the motion would act detrimentally to the medical profession. He recognized no reason for its retention. In reference to a remark by a previous speaker that a relatively small number of men had been enabled to determine the rules governing the conduct of practitioners, he stated that this was inevitable, and was the direct result of the small attendance of members at meetings at which matters of professional importance were considered.

Dr. Jones replied briefly. He restated his case, and, in addition, said that he disapproved of the Red Book, and would ask the Ophthalmological Society to instruct its members to take steps to have their names removed from the list. In appealing to the members to support the motion, he pointed out that, whatever they determined could be altered at some future date. Their determination of that night would not bind them for all time. He thought that, should the Council have trouble with other specialists and should there be abuse, the matter could be reopened. The Council was quite strong enough to deal with any actual abuse, should it arise, and he was convinced that the Branch would support the Council in this eventuality.

The motion was put to the meeting, and was carried by 21 votes to 18.

The following have been nominated for election as members of the New South Wales Branch:—

William Joseph Macdonald, M.B., Ch.M., 1914 (Univ. Sydney), "Cooleen," Wycombe Road, Neutral Bay.

John Colman Woods, L.R.C.P., Edin., 1893; L.R.C.S., Edin., 1893; L.F.P.S., Glasg., 1893; Cessnock, New South Wales.

THE PUBLIC HEALTH ADMINISTRATION IN NEW SOUTH WALES.

(Continued from page 171.)

State Hospitals.

State Hospital and Asylum for Men, Liverpool.

Dr. William McDonald, who succeeded Dr. J. A. Beattie as Medical Superintendent, issues a report dealing with the year 1916. On January 1 there were 555 persons in the institution. During the course of the year 1,414 were admitted. The number of persons discharged was 1,236 and of those who died 209. The death-rate, calculated in the usual manner, works out at 14.26%, and not 12.22%, as stated in the report. The average number of inmates was 564, and the average cost per inmate was £33.

The general division of the Asylum has accommodation for 250 inmates, who do not require active hospital treatment. The Hospital division contains 11 medical and surgical wards, one lock ward and one cancer division. During the course

of the year 886 patients were admitted to the Hospital division. At the beginning of the year there were 308 patients and at the end 283. The number of patients discharged was 702. All the deaths in the institution occurred in this division.

The Lock Ward has accommodation for 37 patients. On January 1, 1916, 21 patients were in the ward. The number of those admitted during the twelve months was 293, while on the last day of the year there were still 36 under treatment. Of these patients 277 were discharged and one died. In the treatment of syphilis arseno-benzol and kharsivan were used. In all, 300 intravenous injections were given. The complement deviation tests of the patients' sera, usually called a Wassermann test, were carried out in the Microbiological Laboratory of the Public Health Department. No information is given concerning the condition of the patients on discharge or the power of their serum to deviate complement. We would suggest for future reports that a summarized statement concerning the effect of treatment might be included with advantage.

In the Cancer Division 35 beds are reserved for patients of the male sex suffering from inoperable malignant growths. There were 46 of these patients in the division on the first day of the year, and a further 109 were admitted during the year. Forty-six of them were discharged. It is not stated why the discharge was assented to, nor what the physical condition of the patient was. The number of deaths was 76. In addition to the work carried out in these two divisions, a considerable number of patients suffering from diseases of the eye and from other affections was dealt with. It is stated that the institution is used to some extent as a general hospital for the district of Liverpool, and it is the intention of the management to develope this aspect of its activity in the future. It is suggested that new nurses' quarters, enlarged dormitory accommodation, an operating theatre, quarters for resident medical officers, an administrative block and a new mortuary are urgently needed to enable those in charge to conduct the work efficiently.

State Hospital and Asylum for Women, Newington.

The report of Dr. E. R. Morris, the Resident Medical Officer of the Newington State Hospital and Asylum, deals with the Hospital Division of this institution. The total number of inmates and patients dealt with in the institution, including those who had been admitted in the previous years, was 1,928. Of this number, 1,043 were discharged and 181 died. The total cost of maintenance and treatment of the patients and inmates amounted to £27,935 5s. 4d. It is stated in the report that the average cost per head was £23 14s. 9d. The average number of persons in residence was 757. The sum of £23 14s. 9d. appears to be the average cost of 12,000 individuals. The nearest figure to this which we can detect in the statement is 1,224, which is the sum of the number of patients discharged and dead. In the case of the Liverpool and Lidcombe Asylums the average cost is worked out, apparently, on the average number of patients in residence. Much confusion would be avoided if the statement were reduced to the average cost per patient per diem. In the Newington institution it would work out at approximately 2s.

To return to the Hospital Division, it appears that there were 790 patients admitted during the year, in addition to 323 who were in Hospital on January 1, 1916. The total number of those discharged was 811, and the total number of deaths was 181. The Resident Medical Officer makes the extraordinary statement that the number of patients treated during the year was 1,686, although he shows that the sum of the patients in the Hospital at the beginning of the year and those admitted during the year aggregated 1,113. Whence the mysterious 573 patients came is not divulged. The inclusion of out-patients would not be permissible in this place, and their number was less than 573. Calculated on the usual formula, the mortality works out at 20.3%. We do not follow the statement that the number of deaths is "equal to 10.6% of the cases treated."

The Resident Medical Officer deplores the inadequacy of the nursing staff and the necessity of requiring untrained, unpaid inmates to carry out some of the nursing duties. The treatment received by the patients, he states, has therefore not been satisfactory. The accommodation in the Hospital Division is insufficient for the present needs, and disastrously so for the future. No additional accommodation has been provided for over 20 years. This matter obviously demands the immediate attention of the Treasury. A list of diseases is published, from which it appears that, in addition to a very large number of minor ailments and ill-defined conditions, the pathological states met with in general hospitals were well represented. There were no less than 113 patients suffering from venereal disease, including 77 from syphilis (21 in the primary or secondary stage) and 36 from gonorrhœa. Diseases of the cardio-vascular system were well represented, there being no less than 81 patients who were suffering from these diseases, while a further 46 were suffering from various forms of paralysis. The total number of operations performed was 230, including nine major operations.

Private Hospitals Act, 1908.

Dr. A. T. Chapple, the Assistant Medical Officer of the Government, publishes a separate report on the operation of the *Private Hospitals Act, 1908*. This Act provides for the proper inspection of the premises and investigation as to the suitability of the proposed licensee and resident manager. It appears that the Act was less strictly administered during 1916, on account of the scarcity of trained nurses. This relaxation, however, will not be maintained after normal conditions are re-established. The total number of applications for new licenses was 140. Of these, 49 came from persons resident in Sydney and its environs. Twenty-seven of the applications were refused and 22 were withdrawn. The licenses issued numbered 90 and those withdrawn numbered 40. Exemptions were granted in eight instances. The total number of licenses in existence on the last day of the year was 555, of which 362 were for maternity hospitals, 173 for hospitals accommodating patients needing medical, surgical or obstetric assistance, and 20 for purely medical and surgical hospitals. Twenty-four of the hospitals contained over 20 beds, while 46 contained between 11 and 20 beds. The licensees were legally qualified medical practitioners in 6.3%, were certificated nurses in 61.6%, and were uncertified persons in 33.1%. The resident managers were legally qualified medical practitioners in 3%.

Legal proceedings were taken for alleged breaches of the Act on five occasions. Three of the persons prosecuted were fined £10 each. During the course of the year 35 cases of diphtheria, 11 of scarlatina, six of morbilli and three of puerperal septicæmia occurred in licensed hospitals and were duly notified in accordance with the provisions of the Act.

Government Medical Officers' Department.

The activity of the two Government Medical Officers is dealt with under the heading of Hospital Admission Depôt. Reference has already been made to the work undertaken in the Depôt. Dr. A. A. Palmer and Dr. H. E. Cahill examined 834 persons applying for admission to the public service. They were also called upon to examine public servants for other purposes. They carried out medical examinations of 3,035 individuals for the purposes of the *Factories Act*. The majority of these were young persons seeking age exemption certificates or permits to work at certain trades.

At the request of the City Coroner, 230 bodies were examined. Evidence was given at the Coroner's Court in 48 cases, and at the Central Criminal Court in three cases. A large number of exhibits requiring special investigation for criminal prosecutions passed through their hands before being sent to the Government Analyst, to the Microbiological Laboratory or other Departments for further examination.

In the Police Department no less than 404 candidates for entrance into the force and 108 probationers at the end of twelve months were examined. The average daily number of police officers requiring medical attendance was 32.2.

The amount of work recorded above would appear to be unduly large for two medical officers. In addition, however, they have to visit the Long Bay Penitentiary from time to time, to visit the Reception House at Darlinghurst for the purpose of examining and certifying persons as insane, and to undertake a not inconsiderable amount of work in connexion with the Miners' Accident Relief Board and the Navigation Department and Shipping Master's Office. Although no suggestion is made in the report that the amount of work required of them is excessive, from the record we are forced to the conclusion that no two public officers should be required to perform so many important and responsible duties.

The control of the Motor Ambulance Service and the work of disinfection and fumigation also belongs to the Hospital Admission Depôt. During the course of the year each of the two motor ambulances travelled over 12,750 miles,

and conveyed between them 2,288 patients to or from their homes. A large amount of disinfection work was carried out at the station at Woolloomooloo Bay.

Food Control.

A very considerable amount of the work undertaken in the Government Chemical Laboratory by Dr. Cooksey, the Government Analyst, and his staff consisted in the examination of samples of milk and other foodstuffs required under the provisions of the *Pure Food Act*. The total number of food samples examined, including those taken from troopships, etc., numbered 11,697. Of these, 7½% were found to be adulterated. Dr. Cooksey cites some curious instances of adulteration. In one case a substance sold as ground coffee proved to be roasted beans or peas. Another example is quoted of pepper containing 60% of ground shell or stones from fruits. One sample of blackberry jam was entirely innocent of blackberries, and consisted of apple pulp artificially coloured. The greater part of the information concerning the control of foodstuffs is found in the report of the Chief Inspector of the Pure Food Branch. As a result of the inspection of premises and analysis of samples of milk, it was found that 230 samples were below standard. No information is given concerning the proportion in which definite evidence of adulteration was detected. That the cows and not the vendors were delinquent in some cases appears probable from the fact that in 116 instances warnings were issued, while proceedings were taken in 115. Had a conviction been obtained in each case, the average amount of fine inflicted, together with costs, would have been £4 6s. 7½d., a sum which we venture to think any milk vendor would be prepared to spend for the privilege of being allowed to add water to his milk. The Chief Inspector states that the fines ranged between £5 and £12, from which it would appear that the evidence of deliberate adulteration was not always very strong. The question of a pure milk supply is of the utmost importance. The public has a right to demand that when milk is bought, milk collected in a cleanly manner and handled so that the contained bacteria should have little opportunity of increasing and extraneous bacteria should have no opportunity of ingress, is handed to them. Dairymen whose premises are not scrupulously clean, and whose methods are not above suspicion as far as the storage and delivery of milk, should be prohibited from trading as milk-vendors altogether. Similarly, dairy-farmers who supply soiled milk should be excluded from the market. The penalty for adding water to, or abstracting cream from, milk offered for sale as whole milk should be deterrent, such as from £100 to £500 fine. On the other hand, the honest trader, whose cows yield a milk which, from time to time, may not conform to the artificial standard set up by the legislature, should neither be punished nor warned. The Chief Inspector indicates that some dairymen and milk-vendors use defective cans and stop up the holes with rags, soap or similar material. When it is remembered that milk stored in this manner is probably intended for consumption by infants, it seems incomprehensible that the most vigorous measures are not adopted. We learn that in these instances the pure food officers seize the receptacles and prosecute the offenders, and that a paltry fine is imposed.

In regard to the clean baking, housing and delivery of bread, it is stated that it was found necessary to prosecute traders in a large way of business for insanitary conditions in ten instances. During the course of the year the officers of the Department seized 45 tons of mixed groceries, 14 tons of preserved fruit and dates, 8½ tons of butter, 6 tons of salted fish, 3¾ tons of flour, 5 tons of salt, 4¾ tons of rice, 3½ tons of sugar, 1½ tons of tomato pulp, 4½ tons of meat, 2 tons of vegetables, 13,198 tins and 58 cases of fish, 702 tins and 83 cases of preserved fruit, and 36,067 bottles of patent medicine on account of being damaged or deteriorated. It appears that much of these foods was seized at auction rooms, where it was being exposed for sale. Some of the foodstuffs were salved from fires, and had been damaged by fire or water. But for the action of the officers of the Department carrying out the provisions of the Pure Food Act, these goods would have found their way to the cheaper restaurants or preserves factories. Attention was also directed to the products sold as ices and ice-cream, and as a result of inspections of premises and the analysis of samples, 18 persons were prosecuted for selling "adulterated ice-cream." The use of the term adulterated is unfortunate. According to the Act, ice-cream must contain not less than 10% of milk fat. An article containing less than this quantity does not conform with the prescribed standard, but is certainly not correctly described as adulterated. It is curious to note that only 40 samples were submitted for analysis, and that 24 of them were said to be below standard.

Inspections of premises used in connexion with the preparation and storage of food were carried out in 3,619 instances. Several notices were served requiring the trader to reconstruct the premises or to remedy insanitary defects. In 95 cases prosecutions were undertaken and fines varying from £1 to £20, aggregating, together with the costs, £493, were imposed.

In the case of persons offering fruit exposed on barrows or elsewhere for sale, the Chief Inspector has some dreadful things to say. Dirty rags were used at times for polishing the fruit, and in one instance a soiled handkerchief was employed for this purpose. This man was fined £2 and 6s. costs. Surely the penalty was wholly insufficient for so disgusting and dangerous a practice. It was also found that topping up fruit was indulged in by some traders. While a good quality of fruit was exhibited to view, the fruit actually handed to the customer was inferior and at times unfit for consumption. The Department has also taken action in the endeavour to eliminate unsatisfactory conditions obtaining in the premises of manufacturing confectioners, in jam manufactories and in fish and smallgoods shops. The inspection of foodstuffs and stores on transports has been carried out at the request of the Minister for Defence. One officer has been specially detailed for this work. During the course of the year 535 samples were examined by the Government Analyst (in Dr. Cooksey's report the number is given as 665). It is stated that the result of this inspection has been beneficial; in no instance has it been necessary to take legal proceedings. In 1915 several prosecutions were taken.

The Acting Chief Veterinary Inspector gives an account of the control exercised over dairies and slaughter houses. This work is undertaken in accordance with the provisions of the *Dairies Supervision Act, 1901*, and the *Cattle Slaughtering and Diseased Animals and Meat Act, 1902*. It is estimated that there are 20,000 dairies in the State, over 500,000 cows in milk and about 100,000 to 150,000 cows dry. During the year 1916 the 40 dairy inspectors inspected 11,658 premises and examined 364,810 animals. The number of milch cows destroyed on account of tuberculosis was 687, on account of actinomycosis 141, on account of cancer 102, and on account of other diseases 6. The Acting Chief Inspector considers that a much larger staff of inspectors should be employed to secure efficiency. In his opinion, at least two visits should be paid to each dairy in the year.

In addition to the dairy inspection, the fourteen inspectors are required to visit every slaughter house in the districts allotted to them. During the year 414 slaughter houses were visited and 958 animals were inspected. Of these, 21 were condemned, 17 on account of tuberculosis. It appears that in the North Coast District four slaughtering inspectors and one assistant are retained at the bacon factories. A temporary arrangement exists, whereby these inspectors brand all bacon coming into the County of Cumberland.

(To be continued.)

Special Correspondence.

(By our Special Correspondent.)

CANADA LETTER.

Canadian Department of Soldiers' Civil Re-establishment.

By Order-in-Council No. 432, under date February 21, 1918, the Canadian Government created a department to administer the work in connexion with the re-establishment in civil life of those who have fought for Canada and the Empire in the present war. The name of the department is the "Department of Soldiers' Civil Re-establishment," which will be presided over by Sir James Lougheed, who has been appointed Minister of Soldiers' Civil Re-establishment. The duties and powers of the new Minister will cover: (*a*) The provision of institutions for the care and treatment of invalided officers, non-commissioned officers and men of the

Canadian Expeditionary Force who have been honourably discharged, and the administration, control and direction of all such institutions; (*b*) vocational and re-educational training of all such discharged men; (*c*) the provision of such employment and assistance as may be requisite or advisable for such men; (*d*) all matters relating to pensions.

The Military Hospitals Commission, with its staff, is to be continued under the name of the Invalided Soldiers' Commission. The medical and surgical treatment of returned members of the Canadian Expeditionary Force is now in the hands of the Military Medical Service, as indicated in a previous Canada Letter.

The American University Union.

There are already over three thousand American University men, students and graduates, engaged in active war work in France, and it is expected that in a short time there may be more than ten thousand. In order to render assistance to all American university men on service, the "American University Union in Europe" has been established. The headquarters of this Union are in Paris, and a branch of the Union is being organized in London. As it is clearly impossible for these men to spend their short leave in America, it is expected that many of them will visit Great Britain. The authorities of Cambridge are preparing to put up small groups of soldier students from the United States during their furlough, and are endeavouring to make arrangements for distributing them among the various colleges.

With the view of facilitating the scheme, a small committee has been formed with the Vice-Chancellor as Chairman, and Dr. Hazeltine, a graduate of Harvard, as Secretary. It is felt that American students would especially appreciate the privilege of being lodged in college, and of dining in the college halls, and they would be enabled thereby to live for a few days in the atmosphere of one of the older Universities.

Similar arrangements are contemplated at Oxford.

LONDON LETTER.

British Hospitals in Serbia.

The *Ratni Duevink*, which is the official organ of the Serbian General Headquarters, in a recent issue, thus eulogizes the work of the British Hospitals at the seat of war in Serbia:—

> Serbia is greatly indebted to the British people, who have placed at the disposal of our Army on the Salonika front, field hospitals of the most modern equipment, with a total of 10,000 beds. Not a single Serbian convalescent soldier, on coming out of hospital, was able to find words to express his gratitude to the British doctors and nurses for all the care and attention which they had bestowed upon him while in hospital. But what filled everybody with enthusiasm was not simply the liberality of the hospital administration and the excellence of the equipment, or the conscientious dutifulness of the members of the staff, but also the whole-heartedness and warmth which made every patient feel thoroughly at home. The British hospitals and those of our other allies have rendered the very greatest service to us, not merely as excellent places of healing, but also as valuable factors in the promotion of mutual acquaintance and understanding. As a first consequence of this close contact with the British there had grown up amongst the Serbians an ardent desire for a lasting Anglo-Serbian friendship, and very many British field hospitals, besides other British organizations working with our troops, have greatly stimulated the growth of this longing for closer association.

Renunciation of German Academic Honours.

The following "Note on Membership of German Academies and Scientific Societies" has been circulated among the Fellows of the Royal Society.

The declaration of war by Germany against Russia and France was, it is known, received with enthusiasm by practically every section of the German nation. The professors, who form the backbone of the German scientific academies and societies, were prominent as a whole in arousing this enthusiasm. It is largely due to them that a belief was created in German minds that Germany was superior to other nations, and that in consequence it was only just and right that German power over other nations should be extended.

No German scientific academy or society has, so far as we know, issued any protest against the many infringements of humanity and of international law which have been characteristic of the German conduct of the war.

We have just received a note from the Royal Society's office in regard to the society's year-book for the ensuing year. The members of the Royal Society doubtless reprobate the act of the German Government in bringing on the war, and its method of conducting it, as much as any other section of British folk. It seems, therefore, incongruous that Fellows of the Society should continue to announce in the year-book of the society, in "Who's Who," or elsewhere, their membership of German academies and scientific societies as an honour which they value. It seems more consistent with the actual state of affairs that such mention should be omitted.

Some Fellows of the Society have, we understand, already adopted this course, with a view to bringing home to German scientific men that learning and research cannot be divorced from public conduct. Others with whom we have spoken intend to do so. Our occupations have prevented us from obtaining the opinions of the Fellows generally, but as we believe that there is a widespread desire for common action, we venture to call attention to the matter. For ourselves, we intend to omit mention of German academies and societies.

The Note is signed by:—

Dr. W. M. Bayliss, Professor of General Physiology at University College, London.
Sir James Dewar, Jacksonian Professor of Experimental Philosophy at Cambridge.
Sir David Ferrier, Emeritus Professor of Neuropathology at King's College, London.
Dr. J. N. Langley, Professor of Physiology at Cambridge.
Sir W. H. Perkin, Waynflete Professor of Chemistry at Oxford.
Sir Ronald Ross, Professor of Tropical Sanitation at Liverpool University.
Dr. C. S. Sherrington, Waynflete Professor of Physiology at Oxford.
Dr. E. H. Starling, Jodrell Professor of Physiology at University College, London.

New Master of Trinity College.

It is officially notified that the King has approved of the appointment of Sir Joseph John Thomson, O.M., D.Sc., F.R.S., to be Master of Trinity College, Cambridge.

The new Master of Trinity was born near Manchester in 1856. He was educated at Trinity (Second Wrangler and second Smith's Prizeman, 1880), and was made Fellow the same year, and Lecturer in 1883. In 1884 he was elected Cavendish Professor of Experimental Physics at Cambridge, and in 1905 Professor of Physics at the Royal Institution. His reputation as a scientific teacher and writer is world wide. He is Hon. Sec. of Dublin, Victoria, Columbia and Oxford; Hon. LL.D. of Princetown, Glasgow, Aberdeen and Johns Hopkins; and Hon. Ph.D., Cracow.

A New Birth-Rate Commission.

The National Council of Public Morals has decided to resume and reconstitute its Birth-Rate Commission, which received the thanks of the Government for its report in 1916. This course is dictated by the great changes wrought by the war. The Commission is to consider in the form of a reconstruction enquiry the following matters:—

The extreme and persistent fall of the legitimate birth-rate in the United Kingdom; and the causes and prevention of the illegitimate birth-rate.
The contemporary movements of population in the Dominions, and the proportional distribution of the sexes throughout the Empire.
The economic problems of parenthood, in view of the rise of prices and taxation, and their probable solution.
The housing problem in relation to parenthood.

The present spread of venereal disease, the chief cause of sterility and degeneracy; and the further menace of these diseases during demobilization.

The increased industrial employment of women of child-bearing age.

The constitution and uses of the coming Ministry of Health as an instrument of racial reconstruction.

The need of a census immediately after the war, and of a permanent anthropometric department in the Ministry of Health.

The co-ordination of these enquiries in Great Britain and the Dominions, with those of the Depopulation Commission in France and the Paris Faculty of Medicine, and of the Federal Child Welfare Bureau in the United States. Similar work in other countries.

JUBILEE OF ST. VINCENT'S HOSPITAL, MELBOURNE.

One of the features in the history of Melbourne during the present generation has been the rapid expansion of St. Vincent's Hospital. Founded about 25 years ago by the Sisters of Charity as a medical mission to the sick poor of Fitzroy, a beginning was made in a small terrace, fronting Victoria Parade. At the present time St. Vincent's Hospital is the second largest general hospital in the State, with respect to the volume of work accomplished, and during the last ten years has also become a highly successful clinical school.

Such an expansion has not been possible without incurring a heavy financial responsibility, and an endeavour is to be made to mark the silver jubilee year by a special effort to lighten the existing liability. The miniature picture campaign met with such a widespread and popular approval last year that the Mother Rectress has decided to make the miniature pictures a further feature of the silver jubilee year. A series of beautiful miniatures of Australian scenery have been specially prepared to this end. They are printed in colours and are extremely attractive, as well as highly artistic. These will be issued in books, and every one purchasing or disposing of a book of pictures will be entitled to claim a small medallion commemorative of the silver jubilee of the hospital. Particular attention is being given to the design and character of this medallion, which will form at one and the same time a memento of artistic merit and a personal token and record of assistance given to charitable effort, and to the provision of medical and surgical aid for the sick and afflicted. Every picture has a story, and every purchaser of these little pictures will be able to tell, in addition, of a good deed cheerfully done.

Books Received.

THE ERRORS OF ACCOMMODATION AND REFRACTION OF THE EYE AND THEIR TREATMENT, A HANDBOOK FOR STUDENTS, by Ernest Clarke, M.D., F.R.C.S., Fourth Edition, 1917. London: Baillière, Tindall & Cox; Crown 8vo., pp. 243, with 93 illustrations. Price, 6s. net.

THE ACTION OF MUSCLES, INCLUDING MUSCLE REST AND MUSCLE RE-EDUCATION, by William Colin Mackenzie, M.D., F.R.C.S., F.R.S.; 1918. London: H. K. Lewis & Company, Limited; Demy 8vo., pp. 267, with 99 illustrations. Price, 12s. 6d. net.

SIR WILLIAM RAMSAY AS A SCIENTIST AND MAN, by Tarini Charan Chaudhuri, M.A., with an Introduction by Panchanan Neogi, M.A., Ph.D.; 1918. Calcutta: Butterworth & Co. (India), Ltd.; Sydney: Butterworth & Co. (Australia), Ltd.; Pocket size, pp. 66. Price, 2s. 6d.

RECLAIMING THE MAIMED, A HANDBOOK OF PHYSICAL THERAPY, by R. Tait McKenzie, M.D., 1918. New York: The Macmillan Company; Sydney: Angus & Robertson, Ltd.; Pocket size, pp. 128, illustrated. Price, 8s. 4d.

Correspondence.

STARVATION IN PNEUMONIA.

Sir,—A year ago you published my paper (read before the Perth Branch of the British Medical Association), in which I advocated complete abstention from all food in pneumonia. The following case is instructive, since the patient received nothing but water for thirteen days and recovered.

J.M., aged 3½ years, a well-nourished boy, was first seen by me on March 20, 1918. The temperature was 39.7° C., the breathing laboured and hurried. There was no sputum. The left lung was solid in the upper two-thirds. There were abundant fine, moist râles, and the breath sounds were tracheal in character, suggestive of loud friction sounds. The bowels acted frequently. The motions were very offensive, green, with much mucus. The people of this district understand that I consider it dangerous to feed a sick child, and the mother had given nothing but water for 24 hours. I gave calomel (60 mg.) and a mixture containing magnes. sulph. (one gramme), with extract of liquorice and peppermint water every two hours, until the motions became normal. I saw the child again on the 22nd, and the temperature was 37.7° C., and the condition better in every way, though the motions were still offensive, but less frequent and watery. The patient was ordered to continue the mixture every four hours, and, if improvement continued, to take barley water next day. This was done, and he had about 280 mils (½ pint), the only break in the water diet. On the morning of the 25th I was informed by telephone that the child was much worse, and ordered the mother to bring him to the hospital by motor. On admission the temperature was 40° C., the pulse 120 and the respirations 40. The child appeared to be desperately ill, quite apathetic, with pupils dilated and eyes kept closed, on account of photophobia. There was no rigidity of the neck, and the knee jerks were absent. On ticking the soles of the feet the whole limb was slowly drawn upwards. The left lung was not so dull, the breath sounds were louder and harsher than normal, with scattered, moist râles. The right lung was now in the same condition as the left five days ago. No sputum appeared, it evidently being swallowed. The stools were brown, fluid and offensive. On March 27 the condition was the same. Calomel (60 mg.) was given, followed by magnesium sulphate (4 gm.) and a soap enema, which had to be administered daily henceforth, the first normal stool appearing on April 4, though the motions were not so offensive for some days before. Seeing that there was a condition of profound toxæmia, water was the only drink given, while frequent spongings reduced the temperature and appeared to give relief. The temperature registred 40° C. daily, until March 30, and then fell by a rapid lysis, being normal on April 3. On April 4 milk and barley water were given. Dr. Barker, of Perth, visited the town on March 31 and saw the patient. There was some rigidity of the neck muscles. He agreed with me that the child's condition was due to toxins from the lungs and bowels, and, while there was suspicion of a slight degree of meningitis, or at least meningeal irritation, that it was best to defer spinal puncture for the present. Recovery was slow, but is now complete. I am of the opinion that, to have administered feed to that child would not have helped it, but would have given it an additional quantity of toxins from undigested food to cope with, with, most likely, fatal results.

Yours, etc.,

C. JOYCE.

Pinjarrah, Western Australia,
August 24, 1918.

A MEDICAL ADVERTISEMENT.

Sir,—I beg to enclose the accompanying advertisement, taken from the Melbourne *Argus* of August 24, 1918:—

> Applications will be received on or before the 7th of September, 1918, by the Secretary of the Ouyen Medical Association (formed for the purpose of guaranteeing a medical practitioner) from duly qualified medical practitioners desirous of a guaranteed practice at Ouyen, extending throughout the Shire of Walpeup.
>
> Applicants to state age, qualifications, terms, etc.
>
> Should any applicant desire particulars, they can be obtained from
>
> J. E. DON, Honorary Secretary, Ouyen.

I have to ask you for an expression of opinion as to whether I am not justified in regarding this advertisement as an attempt to convey the impression that there is no doctor in this district, and that there is an unopposed opening here. The advertisement is artfully worded, but I venture to say that the great majority of medical men would be led to believe from it that this district has no doctor.

I have been in practice here for nearly two and a half years. I have no intention of leaving, and, if you will allow me to add, in my opinion there is no room at present for a second man here. Personal matters, which I cannot ask you to publish, but concerning which I enclose a separate statement, have caused this attempt to bring opposition.

These matters I have laid before the Victorian Branch of the British Medical Association and the Medical Defence Association of Victoria.

Yours, etc.,

EDMUND H. LINDSAY.

Ouyen, Victoria,
August 26, 1918.

Medical Appointments.

The appointment of Dr. A. Krakowsky (B.M.A.) of Renmark, South Australia, as an Officer of Health under the *Health Act, 1898*, is announced in *The South Australian Government Gazette* of September 5, 1918.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xv.

In future, no advertisements inviting applications from medical practitioners for positions in public institutions will be accepted unless the appointment is limited to medical practitioners who are ineligible for military service, or who have returned from military service. The term "ineligible for military service" is used to signify practitioners who are above military age, those who have offered their services and have not been accepted by the military authorities, or those who, for valid reasons, are incapable of applying for a commission in the Australian Army Medical Corps.

Department of Public Instruction, New South Wales, Medical Officer.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Friendly Society Lodges, Institutes, Medical Dispensaries and other contract practice. Australian Prudential Association Proprietary, Limited. National Provident Association. Mutual National Provident Club.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Australian Natives' Association. Brisbane United Friendly Society Institute. Rockhampton Associated Friendly Societies. Cloncurry Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments in South Australia. Contract Practice, Appointments at Renmark.
WESTERN AUSTRALIA. (Hon. Sec., Health Department, Perth.)	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Parramatta, Auburn and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
TASMANIA. (Hon. Sec., Macquarie Street, Hobart.)	Medical Officers in all State-aided Hospitals in Tasmania.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, N.Z.

Diary for the Month.

Sept. 17.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Sept. 18.—S. Sydney Medical Association (N.S.W.).
Sept. 20.—Q. Branch, B.M.A., Council.
Sept. 24.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
Sept. 25.—Vic. Branch, B.M.A., Council.
Sept. 26.—S. Aust. Branch, B.M.A.
Sept. 27.—N.S.W. Branch, B.M.A., Election of Two Members of Federal Committee.
Sept. 30.—Vic. Branch, B.M.A., Election of Two Members of Federal Committee.
Oct. 1.—N.S.W. Branch, B.M.A., Council (Quarterly).
Oct. 2.—Vic. Branch, B.M.A.
Oct. 4.—Q. Branch, B.M.A.
Oct. 4.—Annual Meeting of Delegates of Local Associations of N.S.W. with the Council of N.S.W. Branch (first day).
Oct. 8.—Tas. Branch, B.M.A., Council and Branch.
Oct. 8.—N.S.W. Branch, B.M.A., Ethics Committee.
Oct. 11.—S. Aust. Branch, B.M.A, Council.
Oct. 11.—N.S.W. Branch, B.M.A., Clinical.
Oct. 15.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Oct. 16.—W. Aust. Branch, B.M.A.
Oct. 17.—Vic. Branch, B.M.A., Council.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.